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औद्योगिक प्रयोजनों के लिए प्लग, सॉकेट-आउटलेट और कपलर्स

भाग 2 पिनं और सम्पर्क नलिका साधित्रों की आयाम विनिमय अपेक्षाएँ

Indian Standard

PLUGS, SOCKET-OUTLETS AND COUPLERS FOR INDUSTRIAL PURPOSES

PART 2 DIMENSIONAL INTERCHANGEABILITY REQUIREMENTS FOR PIN AND CONTACT TUBE ACCESSORIES

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NATIONAL FOREWORD

This Indian Standard (Part 2) is identical to IEC Pub 309-2 (1989) covering General requirements of plugs and socket-outlets and couplers for industrial purposes, issued by the International Electrotechnical Commission, was adopted by the Bureau of Indian Standards on the recommendation of the Wiring Accessories Sectional Committee, ET 14 and approval of the Electrotechnical Division Council.

(Continued on third cover)

Indian Standard

PLUGS, SOCKET-OUTLETS AND COUPLERS FOR INDUSTRIAL PURPOSES

PART 2 DIMENSIONAL INTERCHANGEABILITY REQUIREMENTS FOR PIN AND CONTACT TUBE ACCESSORIES

1. Scope

Replacement:

This standard applies to plugs and socket-outlets, cable couplers and appliance couplers with a rated operating voltage not exceeding 690 V, 500 Hz and a rated current not exceeding 125 A, primarily intended for industrial use, either indoors or outdoors.

All references for accessories with a rated current of more than 125 A in Part 1 are not applicable for this Part 2.

This standard applies to plugs and socket-outlets, cable couplers and appliance couplers with pins and contact tubes of standardized configurations.

This standard applies to plugs and socket-outlets, cable couplers and appliance couplers, hereinafter referred to as accessories, for use when the ambient temperature does not normally exceed 40 °C.

The use of these accessories on building sites and for agricultural, commercial and domestic applications is not precluded.

Socket-outlets or appliance inlets incorporated in or fixed to electrical equipment are within the scope of this standard. This standard also applies to accessories intended to be used in extra-low voltage installations.

This standard does not apply to accessories primarily intended for domestic and similar general purposes.

In locations where special conditions prevail, for example on board ship or where explosions are liable to occur, additional requirements may be necessary.

2. Definitions

This clause of Part 1 is applicable.

3. General requirements

This clause of Part 1 is applicable.

4. General notes on tests

This clause of Part 1 is applicable except as follows:

Additional sub-clause:

4.101 If gauges are used, they shall be of hardened steel, all corners shall be slightly rounded-off with a maximum radius of 0.1 mm and the surface-finish for all measurement-surfaces shall be $\overset{N8}{\nabla}$ min, if not otherwise specified.

5. **Standard ratings**

This clause of Part 1 is applicable except as follows:

5.2 *Replacement:*

Standard rated currents are given in Table 101.

TABLE 101

Series I A	Series II A
16	20
32	30
63	60
125	100

6. **Classification**

This clause of Part 1 is applicable except as follows:

6.1.2 *Replacement:*

According to degrees of protection in accordance with IEC Publication 529: IPX0, IPX4, IPX7, or according to degree of protection against moisture:

- ordinary accessories;
- splash-proof accessories;
- watertight accessories.

For new designs, degrees of protection according to Publication 529 shall be used.

IPX0/ordinary accessories have no special protection against moisture, and they need not have hinged lids.

In some countries, IPX0/ordinary accessories are not allowed.

7. **Marking**

This clause of Part 1 is applicable except as follows:

7.1 *Addition:*

The symbol indicating the position of the earthing contact or of the minor key or keyway shall be placed before or above the figure for the rated operating voltage, and separated from it by a line.

These markings shall be placed after that for rated current, separated from it by a dash if an oblique line separates the symbol indicating the position of the earthing contact or of the minor key or keyway from the figure for the rated operating voltage.

If a symbol for nature of supply is used, it shall be placed next to or below the marking for rated operating voltage.

For three-phase accessories it is not necessary to mark the voltage phase to neutral, if any.

The marking for rated current(s), position of the earthing contact or the minor key, keyway, rated operating voltage(s) and nature of supply may accordingly be as follows:

16 A – 7h/500 V~ or 16 – 7h/500~ or ·16 $\frac{7\text{h}}{500\sim}$ or

16/20 A – 7h/500 V~ or 16/20 – 7h/500~ or 16/20 $\frac{7\text{h}}{500\sim}$

32/30 A – 6h/220/380 V~ or 32/30 – 6h $\frac{220/380\sim}{240/415\sim}$ or 32/30 $\frac{6\text{h}}{\substack{220/380\sim\\240/415\sim}}$ or 32/30 $\frac{6\text{h}}{\frac{380\sim}{480\sim}}$

It is allowed to put the symbols for a.c. (~) and d.c. (⎓ or —) after the values (IEC Publication 617-2).

The drawings of Standard Sheets 2-I, 2-II, 2-III and 2-IV show accessories with the symbol 6 h and those of Standard Sheets 2-VIII and 2-IX accessories with the symbol 12 h.

For accessories having rated operating voltages exceeding 50 V, the symbol indicating the position of the earthing contact shall be a numeral followed by the letter h.

The numeral is derived from the position of the earth contact tube, when compared with the face of a clock, the socket-outlet or connector being viewed from the front with the keyway at the sixth hour.

For accessories having rated operating voltages not exceeding 50 V, the symbol indicating the position of the minor key shall be a numeral followed by the letter h.

The numeral is derived from the position of the minor key, when compared with the face of a clock, the socket-outlet or connector being viewed from the front with the major key at the sixth hour.

For plugs and appliance inlets, the symbol indicating the position of the earthing contact or the minor keyway shall be the same as that for the corresponding socket-outlet or connector.

Contact tubes of socket-outlets and connectors with a rated operating voltage exceeding 50 V shall be positioned in the clockwise order when viewed from the front:

- for three-phase, L1, L2, L3, N and ⏚⃝ or ⏚, alternatively 1, 2, 3, N and ⏚⃝ or ⏚;
- for single-phase L/+, unmarked, ⏚⃝ or ⏚.

Contact tubes of socket-outlets and connectors with rated operating voltage not exceeding 50 V shall be positioned as shown in Standard Sheet 2-VIII.

Pins of plugs and appliance inlets shall be positioned in the opposite order viewed from the front.

Note. — The marking of the insulation voltage is mandatory.

7.2 *Modification:*

Delete the following:

IPXX .... other constructions.

8. Dimensions

This clause of Part 1 is applicable except as follows:

8.1 *Replacement:*

Accessories shall comply with the relevant standard sheets as specified below:

- accessories having rated operating voltages exceeding 50 V:
  - 16/20 A and 32/30 A: Sheets 2-I and 2-II;
  - 63/60 A and 125/100 A: without pilot contact: Sheets 2-III and 2-IV;
  - 63/60 A and 125/100 A: with pilot contact: Sheets 2-IIIa and 2-IVa;
  - mechanical interlock for 16 A to 125 A accessories: Sheet 2-V.
- accessories having rated operating voltage not exceeding 50 V:
  16/20 A and 32/30 A: Sheets 2-VIII and 2-IX.

Deviations from the dimensions specified in the standard sheets may be made, but only if they provide a technical advantage and do not adversely affect the purpose and safety of the accessories complying with the standard sheets, especially with regard to interchangeability and non-interchangeability.

Compliance is checked by means of gauges or by measurement for those dimensions not covered by gauges.

- *for accessories having rated operating voltages exceeding 50 V according to:*
  - *Figures 101 and 102 for socket-outlets and connectors;*
  - *Figures 107 and 108 for plugs and appliance inlets;*
- *for accessories having rated operating voltages not exceeding 50 V according to:*
  - *Figures 110 and 112 for 16/20 A and 32/30 A accessories.*

The gauges shall be moved axially to the centre line of the accessory with a force as shown in the following table and applied for 1 min.

TABLE 102

Rated operating voltage	Rated current A		Force (max) for "GO" gauge	Force for "NOT GO" gauge
V	Series I	Series II	N	N $(^{0}_{-1})$
Not exceeding 50 V	16 32	20 30	150 150	30 30
Exceeding 50 V	16 32 63 125	20 30 60 100	60 90 165 240	20 30 55 80

Before the test, the test specimen of insulating material shall be stored at a temperature of 20 ± 5 °C and a relative humidity between 45% and 75% for four weeks.

For accessories having rated operating voltages not exceeding 50 V, the position of the minor key or keyway shall be as shown in Table 103.

For accessories having rated operating voltages exceeding 50 V, the position of the earthing contact shall be as shown in Table 104.

Compliance is checked by inspection.

TABLE 103

Rated operating voltage V	Frequency Hz	Minor key or keyway position*
20 to 25	50 and 60	no minor key or keyway
40 to 50	50 and 60	12
20 to 25 and 40 to 50	100 up to and including 200	4
	300	2
	400	3
	over 400 up to and including 500	11
	Direct current	10

* The minor key or keyway position is indicated by the relevant number (see Sub-clause 7.1).

Positions 1, 8 and 9 are reserved for future standardization. For constructional reasons, positions 5, 6 and 7 cannot be used.

TABLE 104

Type	Frequency Hz	Rated operating voltage V	Accessories earthing-contact position[1]	
			16/20 A 32/30 A	63/ 60 A 125/100 A
2P + ⏚	50 and 60	100 to 130	4	4
		200 to 250	6	6
	60	277	5	5
	50 and 60	380 to 415	9	9
		480 to 500	7	7
		supply from an isolating transformer	12	12
	100 up to and including 300	over 50	–	–
	over 300 up to and including 500	over 50	2	–
	direct current	over 50 up to and including 250	3	3
		over 250	8	8
3P + ⏚	50 and 60	100 to 130	4	4
		200 to 250	9	9
		380 to 415	6	6
	60	440 to 460[2]	11	11
	50 and 60	480 to 500	7	7
		600 to 690	5	5
		supply from an isolating transformer	12	12
	50 60	380 440[3]	3	–
	100 up to and including 300	over 50	10	–
	over 300 up to and including 500	over 50	2	–
3P + N + ⏚	50 and 60	57/100 to 75/130	4	4
		120/208 to 144/250	9	9
		200/346 to 240/415	6	6
		277/480 to 288/500	7	7
		347/600 to 400/690	5	5

TABLE 104 *(continued)*

Type	Frequency Hz	Rated operating voltage V	Accessories earthing-contact position[1]	
			16/20 A 32/30 A	63/ 60 A 125/100 A
3P + N + ⏚	60	250/440 to 265/460[2]	11	11
	50 60	220/380 250/440[3]	3	-
	100 up to and including 300	over 50	-	-
	over 300 up to and including 500	over 50	2	-
All types	All rated operating voltages and/or frequencies not covered by other configurations.		1	1

[1] The earthing-contact position is indicated by the relevant numeral (see Sub-clause 7.1).

[2] Mainly for marine installations.

[3] Only for refrigerated containers (standardized by ISO).

The positions shown by a dash (–) are not standardized.

8.2 *Replacement:*

For accessories having rated operating voltages exceeding 50 V, it shall not be possible to engage plugs or connectors with socket-outlets or appliance inlets having different ratings, or having different contact combinations.

In addition, for all accessories the design shall be such that improper connections shall not be possible between:

- the earth and/or pilot plug-contact and a live socket-contact, or a live plug-contact and the earth and/or pilot socket-contact;
- the phase plug-contacts and the neutral socket-contact, if any;
- a neutral plug-contact and phase socket-contact.

Compliance is checked by inspection.

It shall not be possible to engage plugs with socket-outlets or connectors having different earthing-contact positions or minor key positions.

Compliance is checked by inspection and tests using the methods indicated below. These tests are made after storage of test specimens of insulating material at a temperature of 20 ± 5 °C and with relative humidity between 45% and 75% for four weeks.

For accessories having thermoplastic housing, this test is made at a temperature of 35 ± 2 °C, both the accessories and the gauges being at this temperature.

a) Checking plugs and appliance inlets

For plugs and appliance inlets with rated operating voltage exceeding 50 V, gauges according to Figure 109 are used.

For plugs and appliance inlets with rated operating voltage not exceeding 50 V, gauges according to Figure 113 are used.

First test (key)

The socket-gauge shown in Figure 109 is placed before the plug in such a way that during the test the key shall hit the lower part of the shroud of the gauge approximately in the middle.

The force F is slowly increased in such a way that the total force given in Table 105 is exerted after 15 s. After that the full force is applied for 1 min.

The forces used are given in Table 105.

TABLE 105

Rated current Series I/II	A	16/20	32/30	63/60	125/100
Force *F*	N	175	210	385	560

When the force is applied, the gauge is not permitted to move more than 4 mm in relation to the shroud of the plug or appliance inlet.

After the test, the plug and appliance inlet shall not be damaged in such a way that impairs the further use of the accessory.

These forces are equal to 1.4 times the corresponding withdrawal forces.

Second test (earth-pin)

The force F shall be applied to the earth-pin in the same manner and for the same duration as in the previous test.

After that test, the plug and appliance inlet shall comply with the relevant standard sheet.

b) Checking socket-outlets and connectors

For socket-outlets and connectors having rated operating voltages exceeding 50 V, gauges according to Figure 104 are used.

For socket-outlets and connectors having rated operating voltages not exceeding 50 V, gauges according to Figure 111 are used.

First test (shroud)

The first test is carried out on all different clock positions, except for the one corresponding to the socket-outlet or connector to be used.

The test specimen shall be fixed and supported in such a way that the rigidity of the socket-outlet or connector is not influenced.

Arrangement for test shall be according to Figure 103.

The gauge shown in Figure 104 shall hit two opposite points of the accessory at the same time. The axis of the gauge and of the accessory shall be approximately parallel and the chamfer shall be equally divided on both sides.

The force F is slowly increased in such a way that the total force given in Table 105 is exerted after 15 s. After that the full force is applied for 1 min.

When the force is applied, the gauge is not permitted to move more than 4 mm in relation to the shroud of the socket-outlet or connector.

After the test, the socket-outlet or connector shall not be damaged so as to impair the further use of the accessory.

Second test (holes)

For the second test, the gauge shown in Figure 105 is inserted in each phase hole.

The gauge shall not enter the phase hole by a greater distance than that shown in Table 106 measured from the front of the internal part (see Figure 106).

The same forces and duration and the same method of application are used as for the previous test.

TABLE 106

Rated current Series I/II	A	16/20	32/30	63/60	125/100
Distance *X*	mm	11	12.5	15	20

8.3 *Addition:*

Compliance is checked by manual test and, for accessories with enclosures of resilient or thermoplastic material, by means of the gauge shown in Figure 114.

The gauge is applied with a force of 200 N for 1 min. For accessories with enclosures of thermoplastic material, the gauge is applied at a temperature of 35 ± 2 °C, both the accessories and the gauge being at this temperature.

For accessories of rigid material, such as metal, thermosetting resins, ceramic material and the like, conformity to the relevant standard sheets ensures compliance with this requirement.

9. Protection against electric shock

This clause of Part 1 is applicable except as follows:

9.1 *Addition:*

Conformity with the relevant standard sheets ensures compliance with the requirement as far as inaccessibility of contacts during insertion of a plug or connector into the complementary accessories is concerned.

9.2 *Addition:*

Conformity with the relevant standard sheets ensures compliance with these requirements.

10. Provision for earthing

This clause of Part 1 is applicable.

11. Terminals

This clause of Part 1 is applicable except as follows:

11.4 *Replacement:*

Terminals shall allow the connection of conductors having nominal cross-sectional areas specified in Table 107 and are identified by the terminal sizes given in the table.

Terminals shall comply with Standard Sheets as specified in Sub-clause 11.8 of this standard and are not subject to be tested as in Sub-clauses 11.8 and 11.9 of Part 1.

11.8 *Replacement:*

First test:

Terminals shall comply with the Standard Sheets as specified below, except that for Standard Sheets 2-X, 2-XI and 2-XII the length of thread in the fixed part or nut and the length of thread on the screw or stud may be reduced, if the mechanical strength of the terminal is adequate and at least two full threads of every clamping screw are in engagement when a conductor of the most unfavourable cross-sectional area is clamped.

Standard Sheet 2-X applies to pillar terminals.

Standard Sheet 2-XI applies to screw terminals and stud terminals.

Standard Sheet 2-XII applies to saddle terminals.

Standard Sheet 2-XIII applies to lug terminals.

Mantle terminals shall comply with Standard Sheet 2-X with regard to the dimensions *D* and *e*. Terminals which are essentially of the pillar type, but with the part with the hole for the conductor slotted to enable the conductor to be moved laterally into position, shall comply with Standard Sheet 2-X, except that the maximum gap between the conductor restraining parts on the side where the slot is located shall comply with Standard Sheet 2-XI.

If the required length of thread in a terminal screw hole is obtained by plunging, the edge of the extrusion shall be reasonably smooth and the length of thread shall exceed the specified minimum value by at least 0.5 mm.

Compliance is checked by inspection, by measurement and, for terminals with a reduced length of thread, by the tests of Sub-clause 11.9.

TABLE 107

Size of connectable conductors

Rating of the accessory			Internal connection[1]						External earthing connection if any		
Voltage V	Current A		Flexible cables for plugs and connectors			Solid or stranded cables for socket-outlets[2]					
			Solid or stranded cables for appliance inlets[2]								
	Series I	Series II	mm²	AWG/MCM[3]	Terminal size	mm²	AWG/MCM[3]	Terminal size	mm²	AWG/MCM[3]	Terminal size
Not exceeding 50	16	20	4 to 10	12 to 8	6	4 to 10	12 to 8	5			
	32	30	4 to 10	12 to 8	6	4 to 10	12 to 8	5			
Exceeding 50	16	20	1 to 2.5	16 to 12	2	1.5 to 4	16 to 12	3[4]	6	10	4
	32	30	2.5 to 6	14 to 10	5	2.5 to 10	14 to 8	5	10	8	5
	63	60	6 to 16	10 to 6	7	6 to 25	10 to 4	7	25	4	7
	125	100	16 to 50	6 to 2	9[5]	25 to 70	4 to 0	9[5]	25	4	7

[1] Terminals for pilot conductors, if any, shall allow the connection of conductors having the same nominal cross-sectional areas as the internal terminals of 16 A accessories having rated operating voltages exceeding 50 V.

[2] Classification of conductors: according to IEC Publication 228, Clause 2, solid (Class 1); stranded (Class 2); flexible (Class 5).

[3] The nominal cross-sectional areas of conductors are given in square millimetres (mm²). AWG/MCM values are considered as equivalent to mm² for the purpose of this standard.
AWG: American Wire Gauge is a system of identifying wires in which the diameters are found in geometric progression between size 36 and size 0000.
MCM: Mille Circular Mils denotes circle surface unit. 1 MCM = 0.5067 mm².

[4] For pillar terminals, size 2.

[5] Compliance with terminal size 9 is provisionally not required.

The maximum gap between the conductor restraining parts is checked by means of a steel gauge pin with a diameter equal to e ± 0.05 mm.

For terminals without pressure plate or the like, complying with Standard Sheet 2-X, the clamping screw is screwed fully home without a conductor in position. It shall not then be possible to insert the gauge pin between the threaded part of the screw and the wall of the conductor space.

For terminals complying with Standard Sheet 2-XI, and for terminals with a pressure plate or the like complying with Standard Sheet 2-X, where it is not appropriate to insert the gauge pin in all positions, a conductor is clamped in the terminal.

For terminals complying with Standard Sheet 2-X, the conductor is in the form of a rod with a diameter equal to that corresponding to the middle cross-sectional area of the range specified for the particular terminal and having a flat end perpendicular to the axis.

For terminals complying with Standard Sheet 2-XI, the conductor is solid and has a diameter D as specified in the standard sheet for the particular terminal.

With this conductor in position, it shall not be possible to insert the gauge pin, applied in a direction parallel to the axis of the conductor, into any gap through which a wire of a stranded conductor might escape.

The minimum distance between the clamping screw and the end of the conductor when fully inserted, which is specified in Standard Sheet 2-X, is checked by means of the rod conductor specified above, which shall pass into the conductor space for a distance beyond the threaded hole at least equal to the minimum distance specified.

For terminals with pressure plate, complying with Standard Sheet 2-X, the gauge pin is applied to the gap between the pressure plate and the wall of the conductor space.

The following negative deviations from the specified values are allowed for the minimum nominal thread diameter of the screw:

- 0.15 mm for screws with a nominal diameter not exceeding 5 mm;
- 0.22 mm for screws with a nominal diameter over 5 mm but not exceeding 10 mm;
- 0.27 mm for screws with a nominal diameter over 10 mm.

This sub-clause does not exclude terminals of types other than those shown in the standard sheets. Such terminals shall, however, comply with the other requirements of this clause as far as is reasonable, and it may be necessary to formulate additional requirements.

If the thread in the fixed part or nut is recessed, the total length of the shank of headed screws shall be increased accordingly.

If one or more of the dimensions are larger than the minimum values specified in the standard sheets, the other dimensions need not be correspondingly increased, but departures from the specified values shall not impair the function of the terminal.

11.9 *Replacement:*

Second test:

Terminals complying with Standard Sheet 2-X, but with a reduced length of thread, are fitted with a conductor of the smallest cross-sectional area specified in Table 107, tightly clamped, or a conductor of the largest cross-sectional area specified in this table, lightly clamped, whichever is the more unfavourable.

Terminals complying with Standard Sheets 2-XI or 2-XII, but with a reduced length of thread, are fitted with a conductor of the largest cross-sectional area specified in Table 107, lightly clamped.

At least two threads shall be in full engagement.

The terminals are then fitted with conductors of the smallest and largest cross-sectional areas specified in Table 107, rigid (solid or stranded) for socket-outlets and appliance inlets, and flexible for plugs and connectors, and the terminal screws are tightened, the maximum torque applied being equal to two-thirds of the torque specified in Table XIV of IEC Publication 309-1. Each conductor is subjected to a pull of the value, in newtons, shown in Table 108; the pull is applied without jerks, for 1 min, in the direction of the axis of the conductor space.

TABLE 108

Terminal size	2	3	4	5	6	7	8	9	10
Pull	50	50	60	80	90	100	120	150	200

During the test, the conductor shall not move noticeably in the terminal.

For terminals of sizes 8 to 10, the value of the pull is provisional.

12. Interlocks and retaining devices

This clause of Part 1 is applicable except as follows:

12.1 *Addition:*

If an accessory having a rated operating voltage exceeding 50 V, is provided with a mechanical interlock, this shall comply with Standard Sheet 2-V.

It shall not be possible to operate the mechanical switching device of a mechanically interlocked switched socket-outlet or switched connector, except after the insertion of an appropriate plug.

Note. — Tools are not considered as appropriate plugs.

It is accepted that tools may be used to override interlock for circuit testing purposes.

12.3 *Addition:*

Accessories shall be provided with a retaining device as indicated in Table 109.

13. Resistance to ageing of rubber and thermoplastic material

This clause of Part 1 is applicable.

TABLE 109

Rated current of the accessory A	Classification according to degree of protection against moisture	Socket-outlets and connectors			Plugs and appliance inlets		
		Retaining means	Standard Sheet		Retaining means	Standard Sheet	
			Rated operating voltage exceeding 50 V	Rated operating voltage not exceeding 50 V		Rated operating voltage exceeding 50 V	Rated operating voltage not exceeding 50 V
16/20 and 32/30	IPX0/ordinary	lever or lid	2-I (continuation 1)	2-VIII (continuation 1)	lug or cavity	2-II (continuation 1)	2-IX (continuation 1)
	IPX4/splash-proof	lid	2-I (continuation 1)	2-VIII (continuation 1)	lug or cavity	2-II (continuation 1)	2-IX (continuation 1)
	IPX7/watertight	two-ramp system	2-I (continuation 2)	2-VIII (continuation 2)	lug or cavity and bayonet ring	2-II (continuation 2)	2-IX (continuation 2)
63/60	IPX4/splash-proof	lid and two-ramp system	2-III (continuation 1)	–	lug or cavity	2-IV (continuation 1)	–
	IPX7/watertight	two-ramp system	2-III (continuation 2)	–	bayonet ring	2-IV (continuation 2)	–
125/100	IPX7/watertight [1]	two-ramp system	2-III (continuation 2)	–	bayonet ring	2-IV (continuation 2)	–

---

[1] When 125/100 A socket-outlets are mounted on or integrated with enclosures, the whole unit can also be IPX4.

14. General construction

This clause of Part 1 is applicable except as follows:

Addition:

Accessories having a rated current of 63/60 A shall be IPX4/splashproof or IPX7/watertight.

Accessories having a rated current of 125/100 A shall be IPX7/watertight.

When 125/100 A socket-outlets are mounted on or integrated with enclosures, the whole unit can be IPX4.

15. Construction of socket-outlets

This clause of Part 1 is applicable except as follows:

15.1 *Addition:*

Contact tubes shall be self-adjusting and so designed as to ensure adequate contact continuity before and after a number of operations corresponding to their operational life.

Contact tubes other than the earth-contact shall be floating.

Earth contact tubes need not be floating, provided that they have the necessary resilience in all directions.

Compliance is checked by inspection and by the following test:

The sample is mounted so that the axes of the contact tubes are vertical with the contact openings downwards.

A gauge of hardened steel, with a finish of 0.002 mm and free from grease, having the dimensions shown in Table 110, is inserted into each contact tube also free from grease, and the force necessary to withdraw the gauge is measured.

The sum of the force and the weight of the gauge shall exceed the minimum total force shown in Table 110.

TABLE 110

Nominal pin diameter mm	Gauge	
	Diameter of gauge mm $^{+0}_{-0.01}$	Minimum total force N
5	4.80	2.5
6	5.80	5
7	6.80	5
8	7.80	10
10	9.80	15
12	11.80	20

This test shall be made after that of Sub-clause 15.2.

15.2 *Replacement:*

The pressure exerted by the contact tubes on the pins of a plug shall not be so great as to prevent easy insertion and withdrawal of the plug.

Compliance is checked by determining the force necessary to withdraw the test plug from the sample, this being mounted so that the axes of the contact tubes are vertical with the contact openings downwards, as shown in Figure 115.

A test plug provided with pins having the dimensions shown in Table 111 is inserted into the sample.

TABLE 111

Nominal pin diameter mm	Diameter of pins of the test plug mm $^{+0.01}_{-0}$
5	5.00
6	6.00
7	7.00
8	8.00
10	10.00
12	12.00

The principal weight, together with the supplementary weight (the latter being such that it exerts a force equal to one-tenth of the force exerted by the principal weight) and the test plug, exert a force equal to the maximum withdrawal force shown in Table 112.

The principal weight is hung without jolting on the test plug and the supplementary weight is allowed to fall from a height of 5 cm onto the principal weight.

The plug shall not remain in the sample.

TABLE 112

Rated current A		Maximum withdrawal force
Series I	Series II	N
16	20	150
32	30	150
63	60	275
125	100	400

Details of the test plugs are under consideration.

15.7 *Modification:*

Instead of the third paragraph of the requirements the following applies:

Socket-outlets, splash-proof or up to and including IPX4 designed for only one mounting position, shall have provision for opening a drain hole at least 5 mm in diameter, or 20 mm^2 in area with a width of at least 3 mm, which is effective when the socket-outlet is in the mounting position.

16. Construction of plugs and connectors

This clause of Part 1 is applicable except as follows:

16.1 *Replacement:*

Accessories shall be so designed that they can only be reassembled so as to ensure the correct angular relationship between key(s), keyway(s), the earthing pin and the earthing-contact tube, as originally assembled.

Tests to be carried out are those described in Sub-clauses 15.1 and 15.2.

16.101 *Additional sub-clause:*

Pins shall be solid.

Compliance is checked by inspection.

17. Construction of appliance inlets

This clause of Part 1 is applicable except as follows:

Additional sub-clause:

17.101 Pins shall be solid.

Compliance is checked by inspection.

18. Degrees of protection

This clause of Part 1 is applicable.

19. Insulation resistance and dielectric strength

This clause of Part 1 is applicable except as follows:

19.4 *Replacement:*

Immediately after the test of Sub-clause 19.3 it shall not be possible to engage accessories with enclosures of thermoplastic material with gauges having an earthing-contact position or a minor key or keyway position different from that of the sample.

For socket-outlets and connectors having rated operating voltages exceeding 50 V, the gauges shown in Figures 101 and 102 are used. For plugs and appliance inlets having rated operating voltages exceeding 50 V, the gauges shown in Figures 107 and 108 are used.

For 16/20 A and 32/30 A socket-outlets and connectors having rated operating voltages not exceeding 50 V, the gauges shown in Figure 111 are used. For plugs and appliance inlets having rated operating voltages not exceeding 50 V, the gauges shown in Figure 113 are used.

The gauges are applied with a force of 200 N applied for 1 min.

20. Breaking capacity

This clause of Part 1 is applicable except as follows:

Addition:

Plugs and appliance inlets complying with this standard are not to be tested.

21. Normal operation

This clause of Part 1 is applicable except as follows:

Addition:

Plugs and appliance inlets complying with this standard are not to be tested.

22. Temperature rise

This clause of Part 1 is applicable.

23. Flexible cables and their connection

This clause of Part 1 is applicable except as follows:

23.1 *Addition:*

Cable anchorages shall be of insulating material or be provided with an insulating lining fixed to the metal parts.

24. Mechanical strength

This clause of Part 1 is applicable.

25. Screws, current-carrying parts and connections

This clause of Part 1 is applicable.

26. Creepage distances, clearances and distances through sealing compound

This clause of Part 1 is applicable.

27. Resistance to heat, fire and tracking

This clause of Part 1 is applicable.

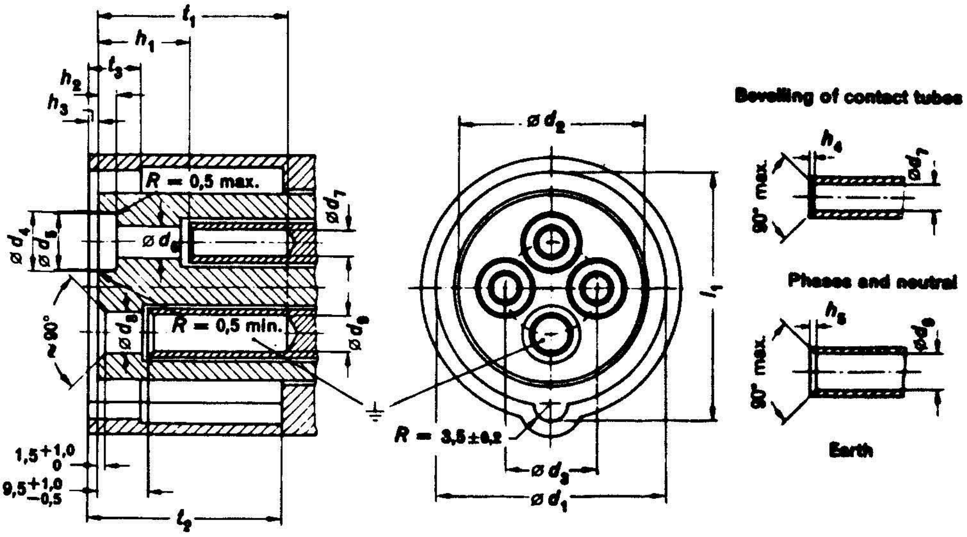
28. Resistance to rusting

This clause of Part 1 is applicable.

STANDARD SHEET

2-I

16/20 A AND 32/30 A SOCKET-OUTLETS AND CONNECTORS HAVING RATED OPERATING VOLTAGES EXCEEDING 50 V



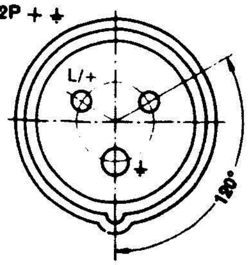
Holes or recesses in the front face, if any, other than those for contact tubes, shall have a depth of not more than 10 mm.
Exception: see Note 2.

Socket-outlets for mechanical interlocking shall be so designed as to prevent any excessive angular movement of a fully inserted plug which would render the mechanical interlocking ineffective.

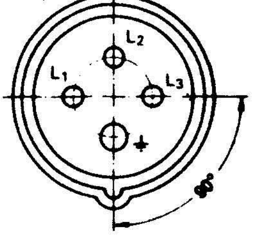
ARRANGEMENT OF CONTACT TUBES

Front view of contact tubes of socket-outlet or connector

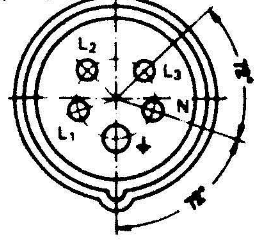
2P + ⏚



3P + ⏚



3P + N + ⏚



Dimensions for Standard Sheet 2-I

Rated current (A)	Type	d_1 [1]		[2] d_2 $^{0}_{-1.5}$	d_3 ±0.5	d_4 $^{+1.0}_{0}$	d_5 min.	d_6 $^{+0.6}_{0}$	[3] d_7	d_8 $^{+0.6}_{0}$	[3] d_9	[4] h_1 $^{+1.0}_{-0.5}$	h_2 $^{+3.0}_{0}$	h_3 $^{0}_{-1}$	h_4 [5]		h_5 [5]		[1] l_1 $^{+0.6}_{0}$	t_1 min.	t_2 min.	t_3
			Tol.												max.	min.	max.	min.				
16/20	2P + ⏚	44.3	$^{+0.4}_{0}$	36.0	17.5	11.6	11.0	6.0	5	8.0	7	19.5	3.8	2	0.8	0.3	1.2	0.4	47.5	37	38	10
	3P + ⏚	50.4	$^{+0.5}_{0}$	40.8	21.5	11.6	11.0	6.0	5	8.0	7	19.5	3.8	2	0.8	0.3	1.2	0.4	54.0	37	38	10
	3P + N + ⏚	57.3	$^{+0.6}_{0}$	46.4	26.5	11.6	11.0	6.0	5	8.0	7	19.5	3.8	2	0.8	0.3	1.2	0.4	61.3	37	38	10
32/30	2P + ⏚	58.6	$^{+0.6}_{0}$	47.0	25.0	13.6	13.0	7.0	6	9.1	8	21.5	5.3	3	1.0	0.3	1.5	0.5	64.6	45	48	15
	3P + ⏚	58.6	$^{+0.6}_{0}$	47.0	25.0	13.6	13.0	7.0	6	9.1	8	21.5	5.3	3	1.0	0.3	1.5	0.5	64.6	45	48	15
	3P + N + ⏚	64.7	$^{+0.6}_{0}$	52.9	30.3	13.6	13.0	7.0	6	9.1	8	21.5	5.3	3	1.0	0.3	1.5	0.5	71.2	45	48	15

Dimensions in millimetres

[1] The dimensions d_1 and l_1 shall be within the prescribed limits over the distance t_3. Beyond this, they may be larger but not smaller.

[2] The dimension d_2 shall not exceed the prescribed limit at any point over the whole depth, and shall be within the prescribed limits over a minimum depth of 3 mm with the exception of a maximum of:

- three cut-outs for the accessories 2P + ⏚;
- four cut-outs for the accessories 3P + ⏚; and
- five cut-outs for the accessories 3P + N + ⏚,

spaced along the circumference with not more than one between adjacent holes for the contact tubes and each having a width not exceeding 10 mm including any radii. Holes deeper than 10 mm in the area of cut-outs are allowed.

[3] The dimensions d_7 and d_9 refer to the pins; the contact tubes need not be circular.

[4] For type 3P + N + ⏚, the value for the dimension h_1 is 16.0 for the neutral contact.

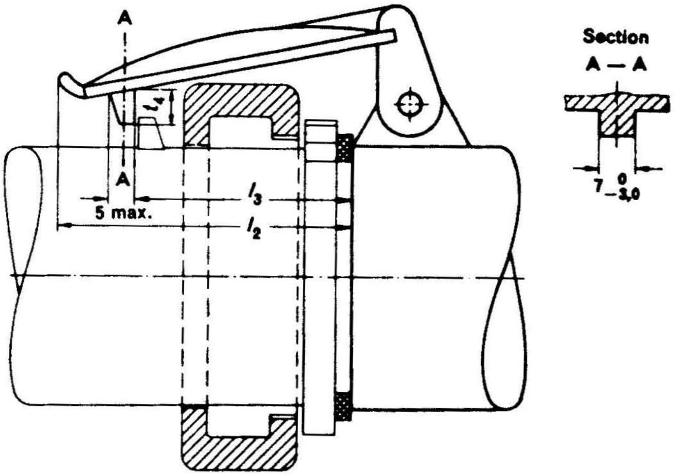
[5] The bevelling of the contact tubes may be well rounded off towards the internal cylindrical surface within a distance of 1½ times the value h_4 max. or h_5 max.

STANDARD SHEET

2-I (continuation 1)

RETAINING MEANS FOR IPX0/ORDINARY AND IPX4/SPLASH-PROOF SOCKET-OUTLETS AND CONNECTORS

Lid or lever shown in latched position



Rated current (A)	Type	l_2 max.	l_3		l_4 min.
				Tol.	
16/20	2P + ⏚	70	41.5	$^{+1.5}_{0}$	5
	3P + ⏚	75	47.5	$^{+1.5}_{0}$	5
	3P + N + ⏚	85	53.5	$^{+1.5}_{0}$	6
32/30	2P + ⏚	85	54.5	$^{+1.5}_{0}$	6
	3P + ⏚	85	54.5	$^{+1.5}_{0}$	6
	3P + N + ⏚	100	60.5	$^{+2.0}_{0}$	7

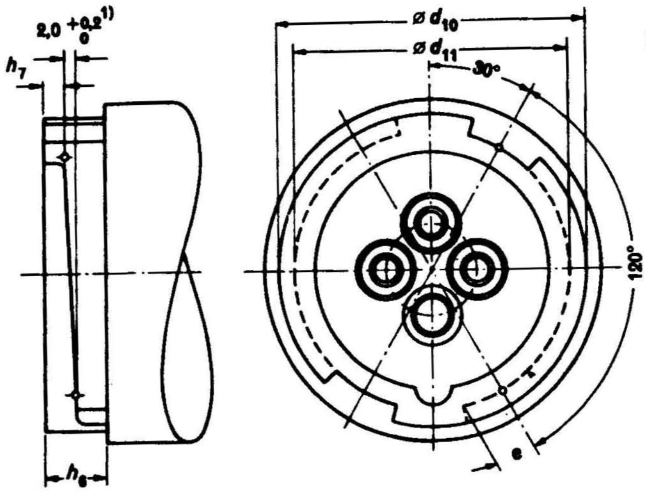
Dimensions in millimetres

For IPX0/ordinary accessories, the retaining means shall be in the form of a lid as shown above for IPX4/splash-proof accessories, or of a lever having the dimensions necessary for latching to the retaining lug of the plug.

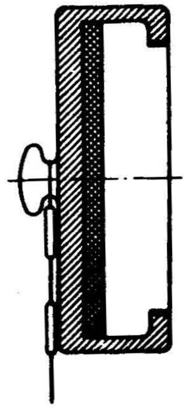
For IPX4/splash-proof accessories, the retaining means shall be in the form of a lid such that IPX7/watertight plugs or appliance inlets complying with Standard Sheet 2-II, and provided with a bayonet ring having maximum dimensions, can be correctly introduced and retained.

STANDARD SHEET
2-I (continuation 2)

RETAINING MEANS FOR IPX7/WATERTIGHT SOCKET-OUTLETS AND CONNECTORS



Example of cap with chain



Rated current (A)	Type	d_{10} 0 −0.5	d_{11} 0 −0.5	e min.	h_6 min.	h_7 0 −0.2
16/20	2P + ⏚	60	53	8	12	4.2
	3P + ⏚	68	60	10	12	4.2
	3P + N + ⏚	76	68	12	12	4.2
32/30	2P + ⏚	82	72	12	14	6.2
	3P + ⏚	82	72	12	14	6.2
	3P + N + ⏚	89	79	15	14	6.2

Dimensions in millimetres

The retaining means shall be in the form of bayonet ramps such that IPX7/watertight plugs or appliance inlets complying with Standard Sheet 2-II, and provided with a bayonet ring having maximum dimensions, can be correctly introduced at an angle of 30 ± 3° and rotated up to a maximum of 120°.

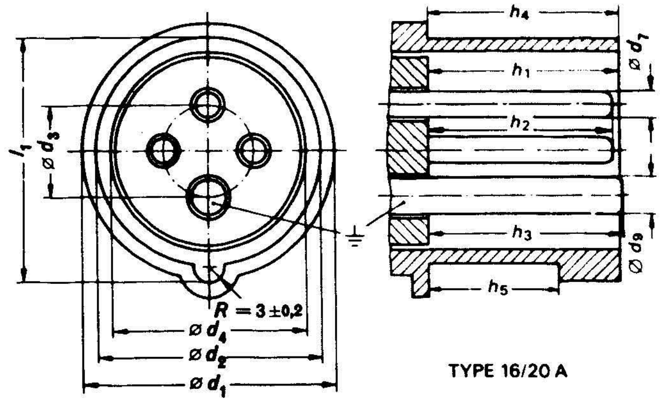
The sketches are not intended to govern design except as regards the dimensions shown.

---

[1] The inclination of the ramps shall be such that this dimension refers to the angle of 120° shown.

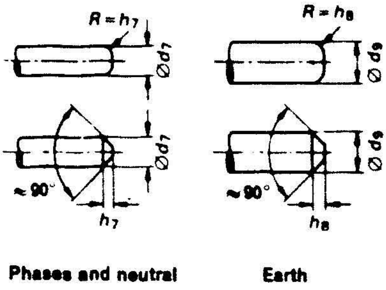
STANDARD SHEET
2-II

16/20 A AND 32/30 A PLUGS APPLIANCE INLETS HAVING RATED OPERATING VOLTAGES EXCEEDING 50 V



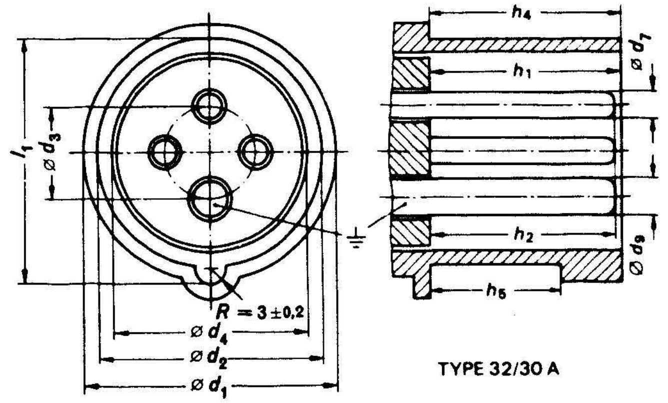
TYPE 16/20 A

End of pins

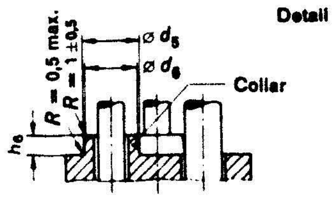


Phases and neutral

Earth



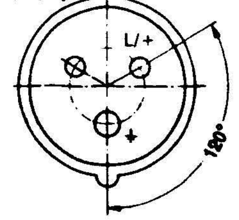
TYPE 32/30 A



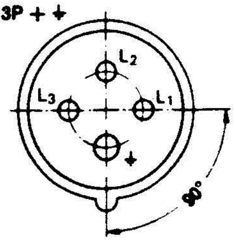
ARRANGEMENT OF PINS

Front view of pins of plugs or appliance inlet

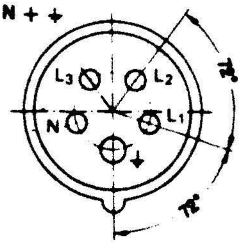
2P + ⏚



3P + ⏚



3P + N + ⏚



Dimensions for Standard Sheet 2-II

Rated current (A)	Type	d_1 min.	d_2		d_3 ±0.5	d_4			1) d_5 max.	1) d_6 max.	d_7 $^{0}_{-0.075}$	d_8 $^{0}_{-0.09}$	h_1 $^{0}_{-1}$	h_2 $^{0}_{-1}$	h_3 $^{0}_{-1}$	h_4 $^{0}_{-1}$	h_5 $^{+1.0}_{0}$		1) h_6 max.	6) h_7		6) h_8		l_1		
							tol.																			
				Tol.			4)	5)									2)	3)		max.	min.	max.	min.	4)	5)	Tol.
16/20	2P + ⏚	47.5	43.5	$^{0}_{-0.6}$	17.5	37.9	$^{+1.9}_{0}$	$^{+1.5}_{0}$	11	10	5	7	37	36	38	37	24.0	27.5	3.5	1.7	0.8	1.5	0.75	46.5	47.0	$^{0}_{-0.4}$
	3P + ⏚	53.5	49.5	$^{0}_{-0.6}$	21.5	42.8	$^{+1.9}_{0}$	$^{+1.5}_{0}$	11	10	5	7	37	36	38	37	24.0	27.5	3.5	1.7	0.8	1.5	0.75	52.9	53.6	$^{0}_{-0.5}$
	3P + N + ⏚	60.5	56.1	$^{0}_{-0.6}$	26.5	48.8	$^{+1.9}_{0}$	$^{+1.5}_{0}$	11	10	5	7	37	36	38	37	24.0	27.5	3.5	1.7	0.8	1.5	0.75	60.1	61.0	$^{0}_{-0.6}$
32/30	2P + ⏚	61.5	57.3	$^{0}_{-0.8}$	25.0	49.7	$^{+1.9}_{0}$	$^{+1.6}_{0}$	13	12	6	8	46	45	–	46	32.0	35.5	5.0	2.0	1.0	2.5	1.2	63.2	63.2	$^{0}_{-0.6}$
	3P + ⏚	61.5	57.3	$^{0}_{-0.8}$	25.0	49.7	$^{+1.9}_{0}$	$^{+1.6}_{0}$	13	12	6	8	46	45	–	46	32.0	35.5	5.0	2.0	1.0	2.5	1.2	63.2	63.2	$^{0}_{-0.6}$
	3P + N + ⏚	67.5	63.4	$^{0}_{-0.8}$	30.3	55.6	$^{+1.9}_{0}$	$^{+1.6}_{0}$	13	12	6	8	46	45	–	46	32.0	35.5	5.0	2.0	1.0	2.5	1.2	69.9	69.9	$^{0}_{-0.7}$

Dimensions in millimeters

[1] Collars, as shown in the detail, required for accessories, having rated operating voltages exceeding 500 V, optional for other accessories.

[2] For IPX0/ordinary and IPX4/splashproof accessories.

[3] For IPX7/watertight accessories.

[4] For accessories with metal enclosures.

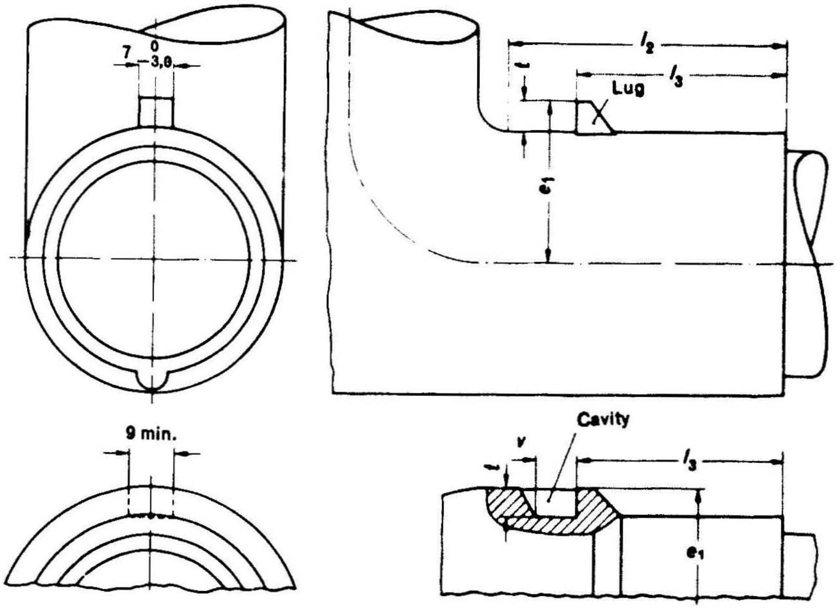
[5] For accessories with enclosures of insulating material.

[6] The end of the pins may be well rounded off towards the external cylindrical surface within a distance of 1½ times the value h_7 max. or h_8 max.

STANDARD SHEET

2–11 (continuation 1)

RETAINING MEANS FOR IPXO/ORDINARY OR IPX4/SPLASH-PROOF PLUGS AND APPLIANCE INLETS



Rated current (A)	Type	e_1 $^{0}_{-2}$	1) l_2 min.	l_3		t min	v min
					Tol		
16/20	2P + ⏚	31	75	41	$^{0}_{-1,0}$	4	8
	3p + ⏚	35	80	47	$^{0}_{-1,0}$	5	8
	3P + N + ⏚	39	90	53	$^{0}_{-1,0}$	7	8
32/30	2P + ⏚	41	90	54	$^{0}_{-1,0}$	7	8
	3P + ⏚	41	90	54	$^{0}_{-1,0}$	7	8
	3P + N + ⏚	46	105	60	$^{0}_{-1,0}$	8	9

Dimensions in millimetres

The retaining means shall be in the form of a lug or a cavity, at position 12 h.

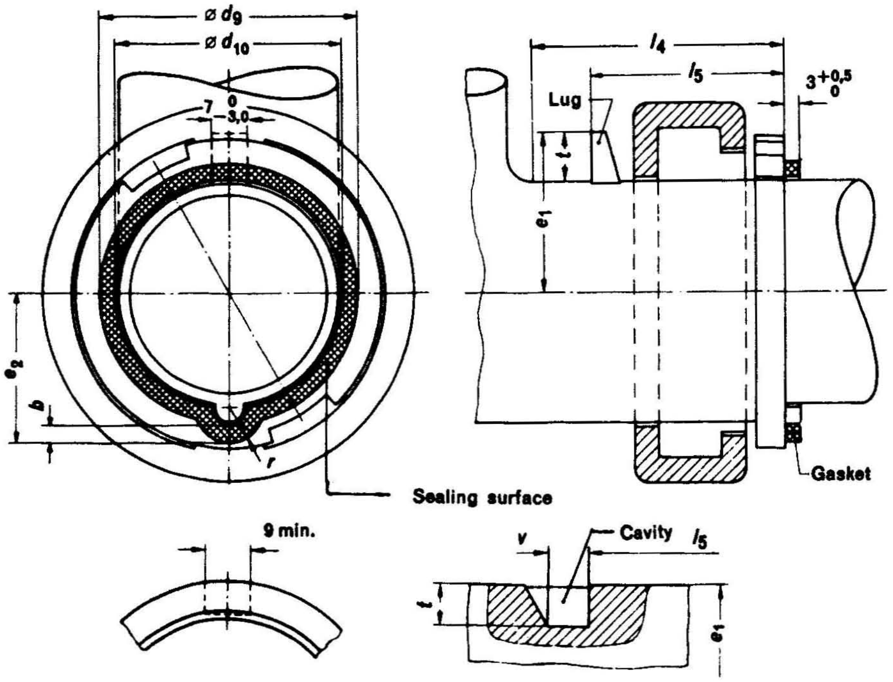
---

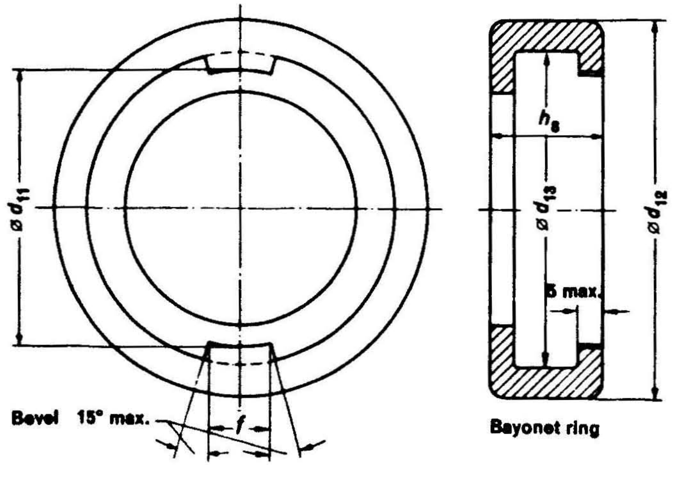
[1] Minimum clearance required for movement of hinged lid.

STANDARD SHEET

2-II (continuation 2)

RETAINING MEANS FOR IPX7/WATERTIGHT PLUGS AND APPLIANCE INLETS





Dimensions for Standard Sheet 2-II
(continuation 2)

Rated current (A)	Type	Nose and cavity						Sealing surface					Bayonet ring				
		e_1 0 −2	1) l_4 min	l_5		t min	s min	b min	d_9 min	d_{10} max	e_2 min	r min	d_{11} +0.5 0	d_{12} max	d_{13} min	f 0 −0.5	h_9 max
					Tol												
16/20	2P + ⏚	31	75	38	$^{0}_{-1.0}$	4	8	3.0	50.8	44.8	28.6	6.7	53.5	73	60.5	12	22
	3P + ⏚	35	80	44	$^{0}_{-1.0}$	5	8	3.5	57.9	50.9	32.6	7.2	60.5	81	68.5	16	24
	3P + N + ⏚	39	90	50	$^{0}_{-1.0}$	7	8	4.0	65.8	57.8	36.9	7.7	68.5	89	76.5	19	26
32/30	2P + ⏚	41	90	51	$^{0}_{-1.0}$	7	8	4.6	69.5	59.1	40.1	8.2	72.5	95	82.5	19	30
	3P + ⏚	41	90	51	$^{0}_{-1.0}$	7	8	4.6	69.5	59.1	40.1	8.2	72.5	95	82.5	19	30
	3P + N + ⏚	46	105	57	$^{0}_{-1.5}$	8	9	5.3	76.6	65.2	43.4	9.0	79.5	102	89.5	22	32

Dimensions in millimetres

---

1) Minimum clearance required for movement of hinged lid.

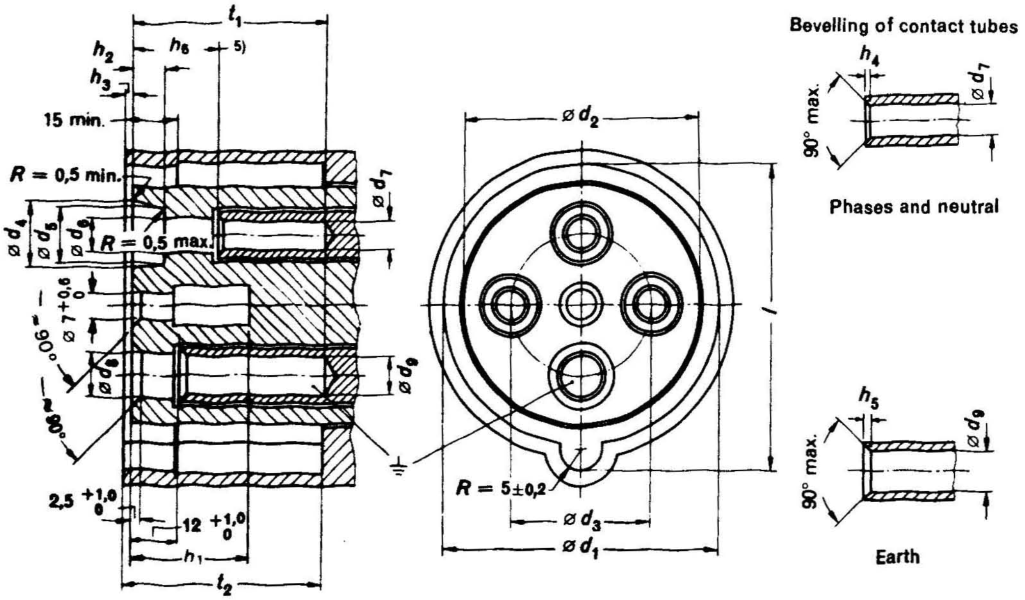
The retaining means shall be in the form of a bayonet ring and a lug or a cavity, at position 12 h.

The sketches are not intended to govern design except as regards the dimensions shown.

STANDARD SHEET
2-III

63/60 A AND 125/100 A SOCKET-OUTLETS AND CONNECTORS HAVING RATED OPERATING VOLTAGES EXCEEDING 50 V

WITHOUT PILOT CONTACT



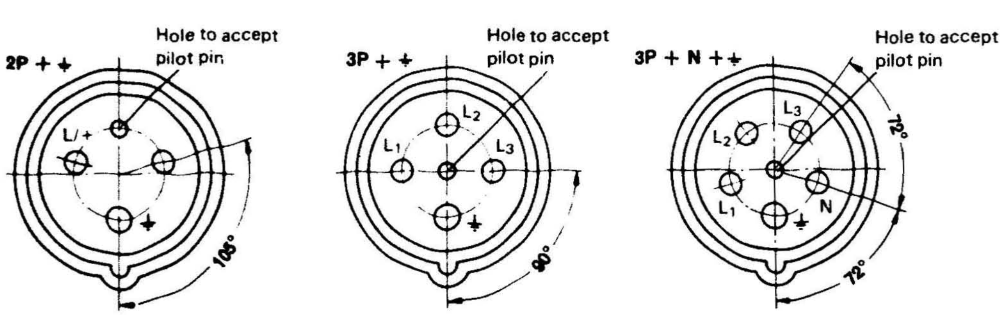
A hole in the frontal face is mandatory to accept the pilot pins of plugs or appliance inlets.

Holes or recesses in the frontal face, if any, other than those for contact holes shall have a depth of not more than 10 mm, except for pilot pin holes (exception: see Note 2).

Socket-outlets for mechanical interlocking shall be so designed as to prevent any angular movement of a fully inserted plug which would render the mechanical interlocking ineffective.

ARRANGEMENT OF CONTACT TUBES

Front view of contact tubes of socket-outlet or connector

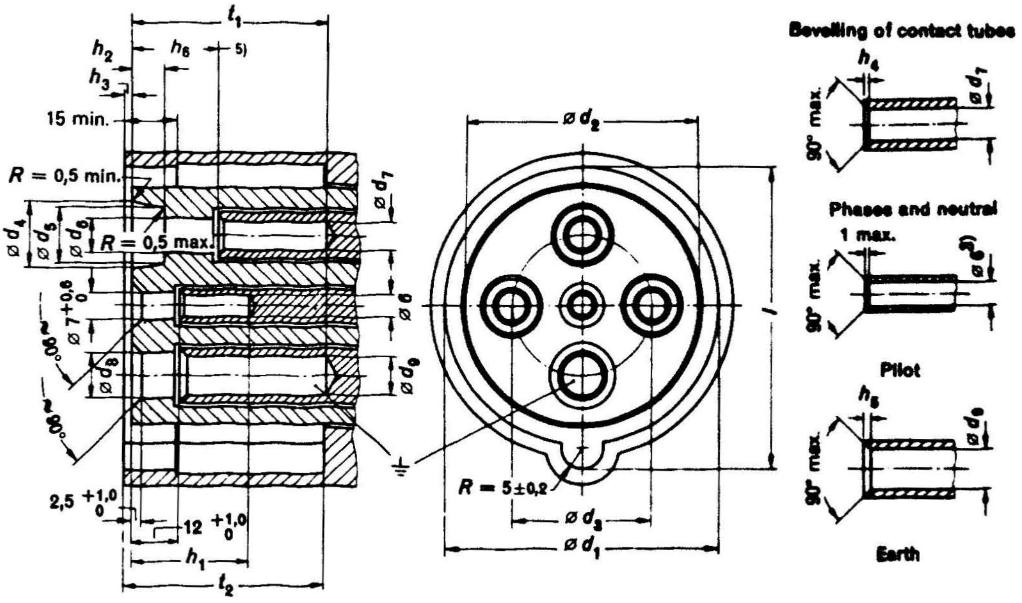


STANDARD SHEET

2-IIIa

63/60 A AND 125/100 A SOCKET-OUTLETS AND CONNECTORS HAVING RATED OPERATING VOLTAGES EXCEEDING 50 V

WITH PILOT CONTACT



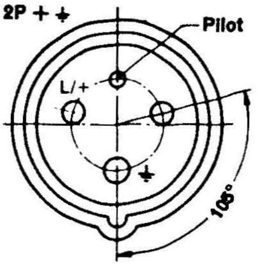
Holes for recesses in the frontal face, if any, other than those for contact tubes, shall have a depth of not more than 10 mm (exception: see Note 2).

Socket-outlets for mechanical interlocking shall be so designed as to prevent any excessive movement of a fully inserted plug which would render the mechanical interlocking ineffective.

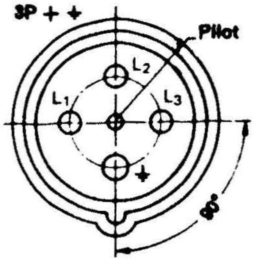
ARRANGEMENT OF CONTACT TUBES

Front view of contact tubes of socket-outlet or connector

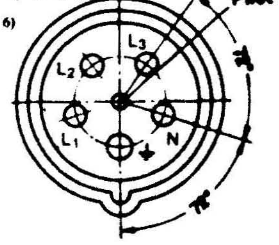
2P + ⏚



3P + ⏚



3P + N + ⏚
6)



Dimensions for Standard Sheets 2-III and 2-IIIa

Type	Rated current (A)	1) d_1 +0.8 0	2) d_2 0 −1.5	d_3 ±0.5	d_4 +1.0 0	d_5 min.	d_6 +0.6 0	3) d_7	d_8 +0.6 0	3) d_9	h_1 min.	h_2 +3.0 0	h_3 0 −1	4) h_4		4) h_5		1) l_1 +0.8 0	t_1 min.	t_2 min.
														max.	min.	max.	min.			
2P + ⏚ 3P + ⏚ 3P + N + ⏚	63/60	71.0	60.0	36.5	16.6	15.1	9.0	8	11.0	10	30.0	8.0	2.5	1.5	0.5	2.0	0.6	77.5	67	69
	125/100	83.0	71.0	42.5	21.0	19.0	11.0	10	14.0	12	32.0	10.0	4	2.0	0.6	2.5	0.8	89.5	71	76

Dimensions in millimetres

[1] The dimensions d_1 and l_1 shall be within the prescribed limits over a distance of 15 mm. Beyond this, they may be larger but not smaller.

[2] The dimension d_2 shall not exceed the prescribed limit at any point over the whole depth, and shall be within the prescribed limits over a minimum depth of 6 mm with the exception of a maximum of:

- three cut-outs for the accessories 2P + ⏚;
- four cut-outs for the accessories 3P + ⏚; and
- five cut-outs for the accessories 3P + N + ⏚

spaced along the circumference with not more than one between adjacent holes for the contact tubes and each having a width not exceeding 15 mm including any radii. Holes deeper than 10 mm in the area of cut-outs are allowed

[3] The dimensions d_7 and d_9 refer to the pins; the contact tubes need not be circular.

[4] The bevelling of the contact tubes may be well rounded off towards the internal cylindrical surface within a distance of $1^1/_2$ times the values h_4 max. or h_5 max.

[5] This dimension may be increased in accordance with the table below:

Depth of the contact hole	h_6	
Type	63/60 A	125/100 A
With electrical interlocking (mm) With mechanical interlocking (mm) Without interlock (mm)	21 21 ou/or 40 21 ou/or 40	21 21 ou/or 40 40

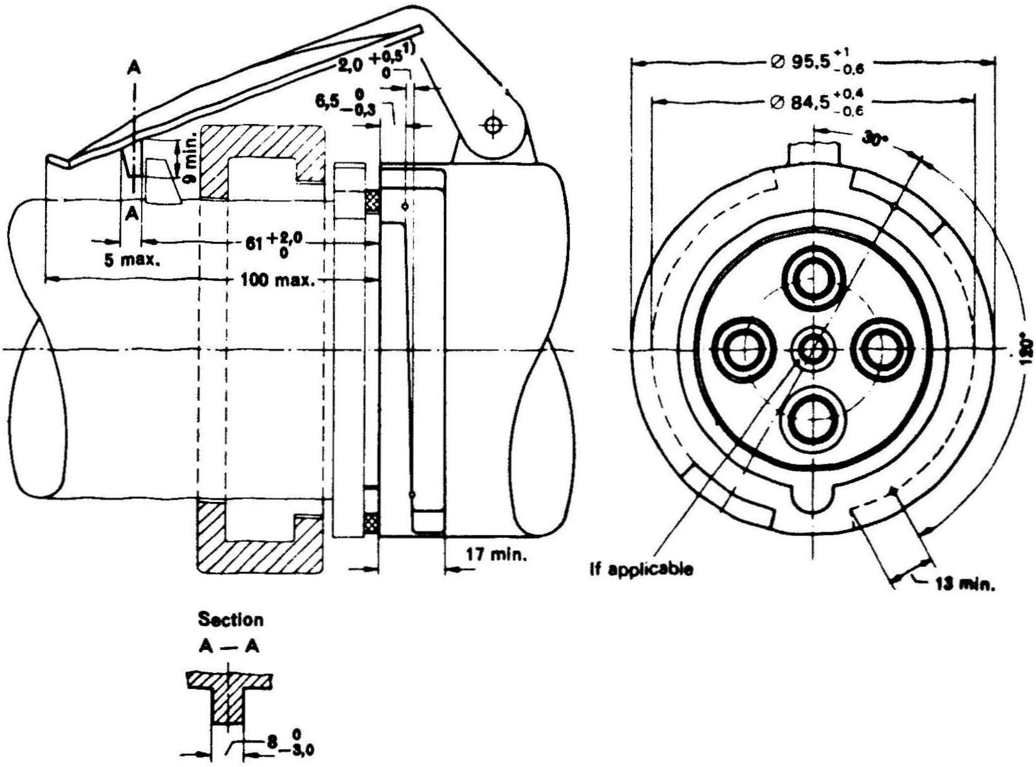
[6] For 3P + N + ⏚ accessories the depth of the neutral contact shall be less than for the phase contacts but greater than for the earth contact.

STANDARD SHEET
2-III (continuation 1)

RETAINING MEANS FOR 63/60 A IPX4/SPLASHPROOF SOCKET-OUTLETS AND CONNECTORS

ALL TYPES

Lid shown in latched position



Dimensions in millimetres

The retaining means shall be in the form of bayonet ramps and a lid such that IPX7/watertight plugs or appliance inlets complying with Standard Sheets 2-IV and 2-IVa, and provided with a bayonet ring having maximum dimensions, can be correctly introduced at an angle of 30 ± 3° and rotated up to a maximum of 120°

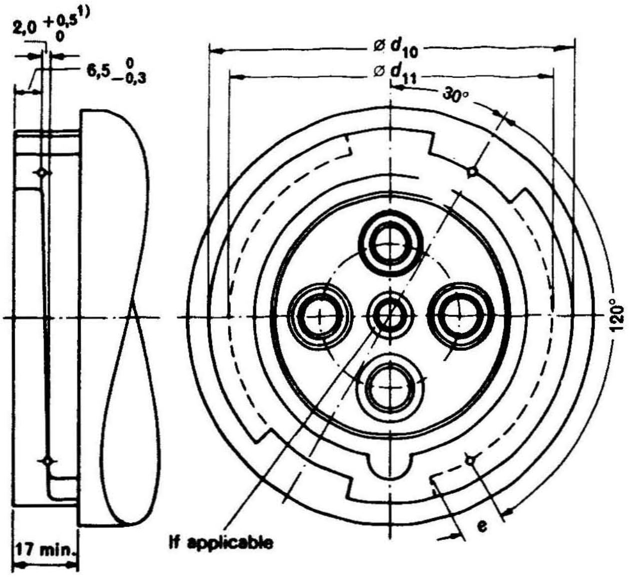
---

[1] The inclination of the ramps shall be such that this dimension refers to the angle of 120° shown.

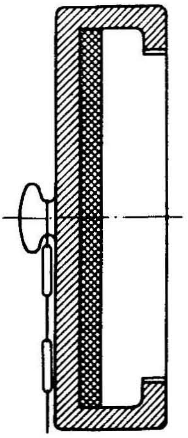
STANDARD SHEET
2-III (continuation 2)

RETAINING MEANS FOR 63/60 A AND 125/100 A IPX7/WATERTIGHT SOCKET-OUTLETS AND CONNECTORS

ALL TYPES



Example of cap with chain



Type	Rated current (A)	d_{10} +1 −0.6	d_{11} +0.4 −0.6	e min.
2P + ⏚ 3P + ⏚ 3P + N + ⏚	63/60	95.5	84.5	13
	125/100	108.5	97.5	16

Dimensions in millimetres

The retaining means shall be in the form of bayonet ramps and a lid such that IPX7/watertight plugs or appliance inlets complying with Standard Sheets 2-IV and 2-IVa, and provided with a bayonet ring having maximum dimensions, can be correctly introduced at an angle of 30 ± 3° and rotated up to a maximum of 120°.

The sketches are not intended to govern design except as regards the dimensions shown.

---

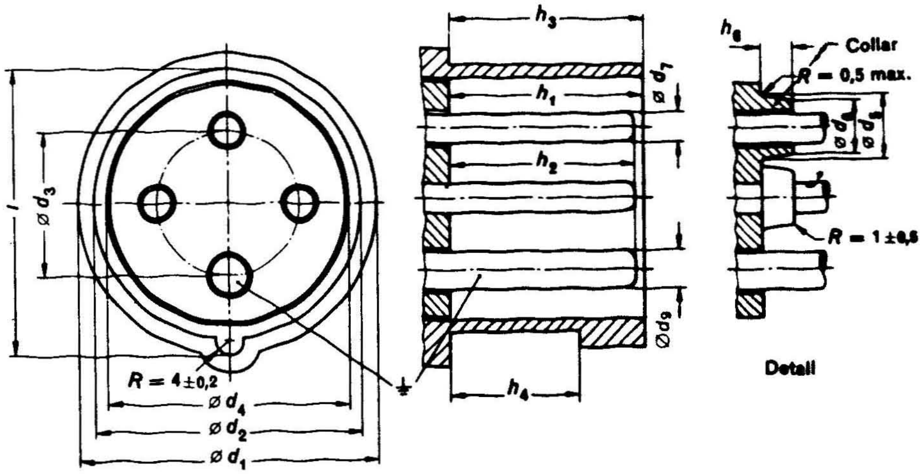
1) The inclination of the ramps shall be such that this dimension refers to the angle of 120° shown.

STANDARD SHEET

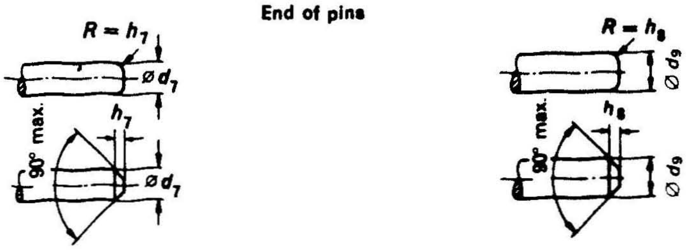
2-IV

63/60 A AND 125/100 A PLUGS AND APPLIANCE INLETS HAVING RATED OPERATING VOLTAGES EXCEEDING 50 V

WITHOUT PILOT PIN



End of pins



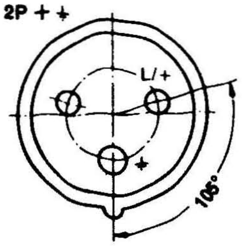
Phases and neutral

Earth

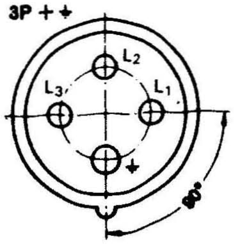
ARRANGEMENT OF PINS

Front view of pins of plug or appliance inlet

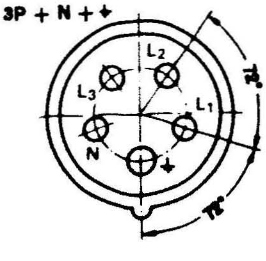
2P + ⏚



3P + ⏚



3P + N + ⏚

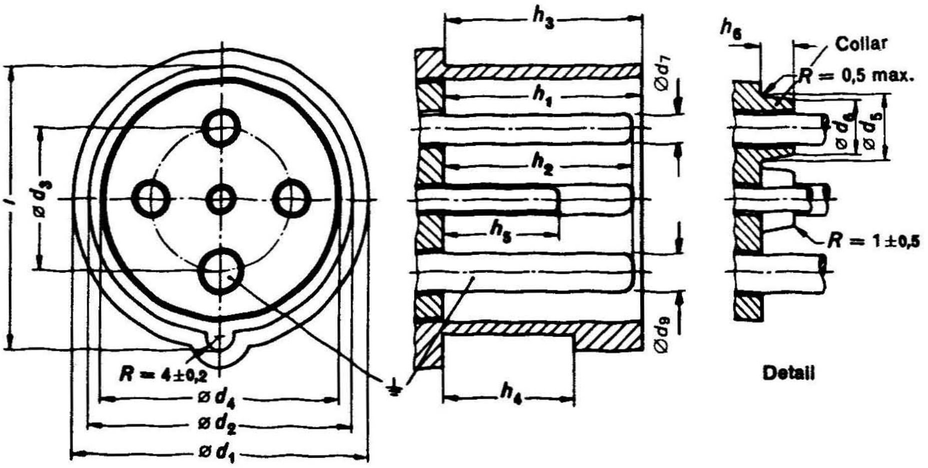


STANDARD SHEET

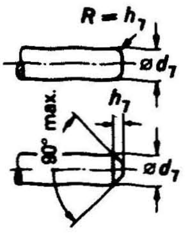
2-IVa

63/60 A AND 125/100 A PLUGS AND APPLIANCE INLETS HAVING RATED OPERATING VOLTAGES EXCEEDING 50 V

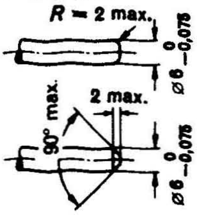
WITH PILOT PIN



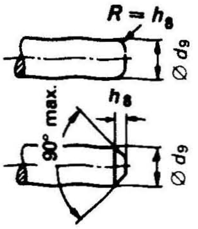
End of pins



Phases and neutral



Pilot

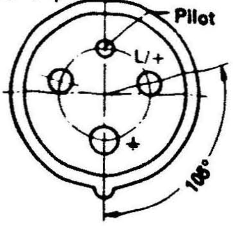


Earth

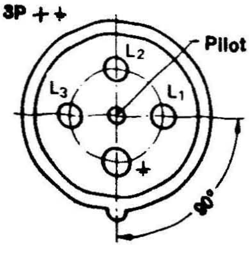
ARRANGEMENT OF PINS

Front view of pins of plug or appliance inlet

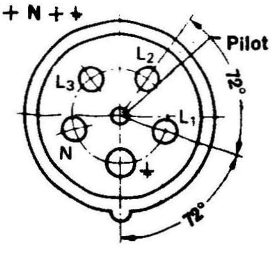
2P + ⏚



3P + ⏚



3P + N + ⏚



Dimensions for Standard Sheets 2-IV and 2-IVq

Type	Rated current (A)	d_1	d_2	d_3	d_4		1) d_5	1) d_6	d_7	d_8	h_1	h_2	h_3	h_4	h_5	1) h_6	2) h_7		2) h_8		l
		min.	$^{0}_{-0.8}$	±0.5		Tol.	max.	max.	$^{0}_{-0.09}$	$^{0}_{-0.11}$	$^{0}_{-1.0}$	$^{0}_{-1.0}$	$^{0}_{-1.0}$	$^{+2}_{0}$	$^{0}_{-1.0}$	max	max	min	max	min	$^{0}_{-0.6}$
2P + ⏚ 3P + ⏚ 3P + N + ⏚	63/60	75.5	69.5	36.5	61.5	$^{+2}_{0}$	15.8	14.3	8	10	67.0	66.0	67.0	50	29.0	8	2.5	1.2	3.0	1.5	75.5
	125/100	87.5	81.5	42.5	72.5	$^{+2.5}_{0}$	20.2	18.2	10	12	74.5	69.5	75.5	58	31.5	10	3.0	1.5	4.0	2.0	87.5

Dimensions in millimetres

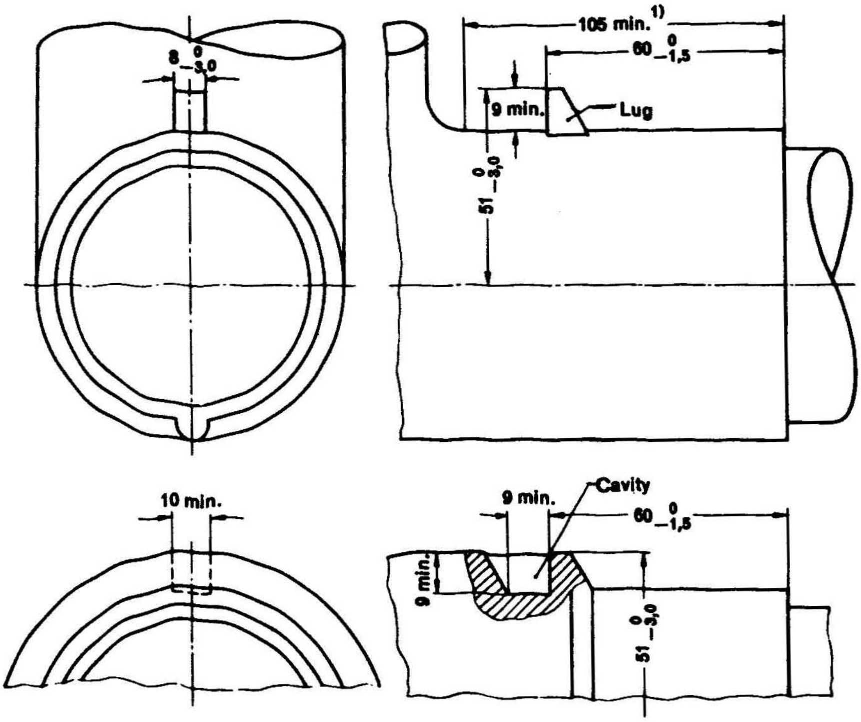
1) Collars, as shown in the detail, required for accessories having rated operating voltages exceeding 500 V, optional for other accessories.

2) The end of the pins may be rounded off towards the external cylindrical surface within a distance of 1½ times the value h_7 max. or h_8 max.

STANDARD SHEET
2-IV (continuation 1)

RETAINING MEANS FOR 63/60 A IPX4/SPLASH-PROOF PLUGS AND APPLIANCE INLETS

ALL TYPES



Dimensions in millimetres

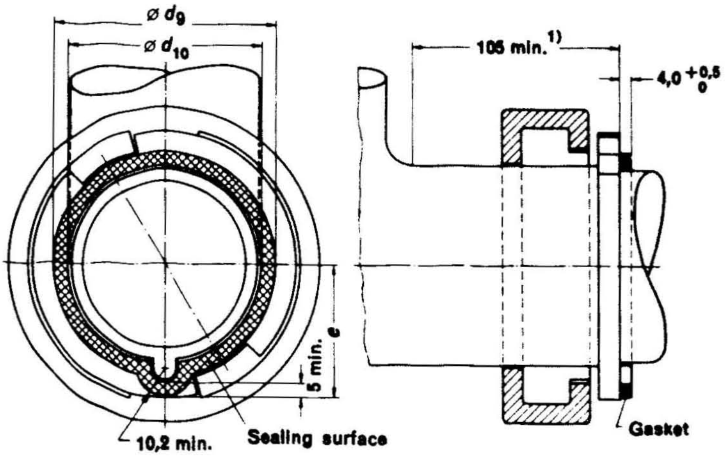
---

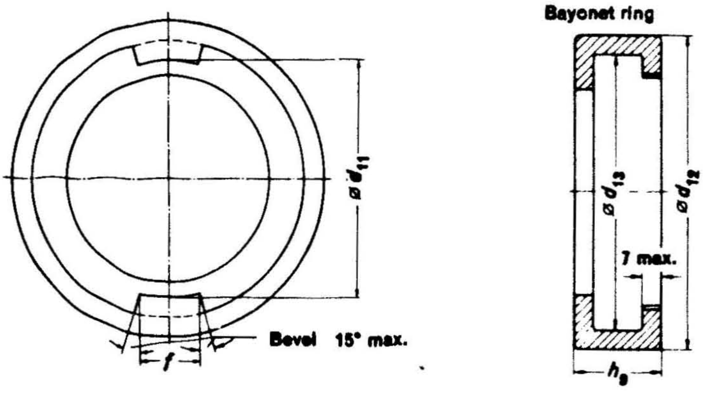
[1] Minimum clearance required for movement of hinged lid.

The retaining means must be in the form of a lug or a cavity, at present 12 h.

STANDARD SHEET
2-IV (continuation 2)

RETAINING MEANS FOR 63/60 A AND 125/100 A IPX7/WATERTIGHT PLUGS AND APPLIANCE INLETS





Dimensions for Standard Sheet 2-IV (continuation 2)

Type	Rated current A	Sealing surface			Bayonet ring				
		d_9 min.	d_{10} max.	e min	d_{11} $+0.6$ -0.4	d_{12} max	d_{13} min.	f 0 -0.5	h_9 max
2P + ⏚ 3P + ⏚ 3P + N + ⏚	63/60	81.5	71.5	46.8	86.0	114	98	22	32
	125/100	93.5	83.5	53.3	99.0	131	111	27	35

Dimensions in millimetres

The retaining means must be in the form of a bayonet ring.

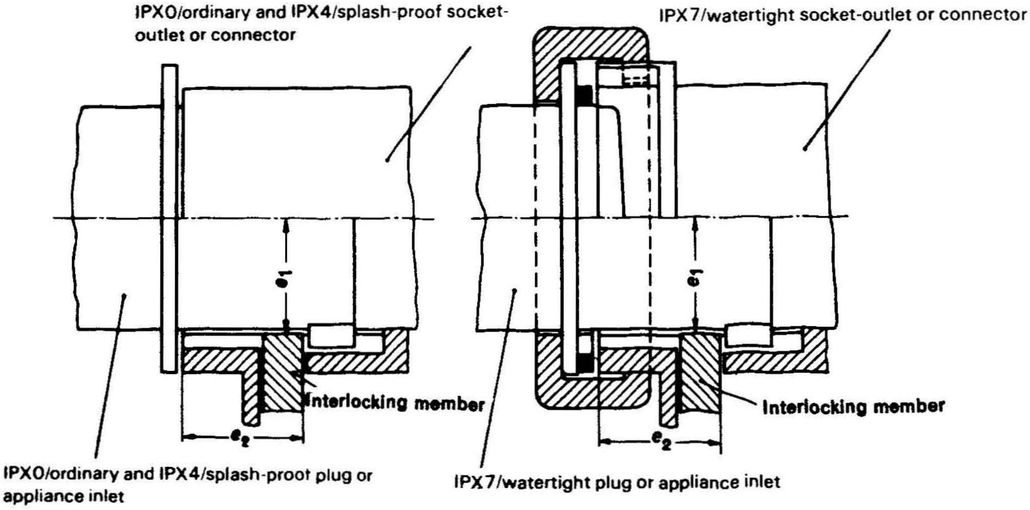
The sketches are not intended to govern design except as regards the dimensions shown.

---

[1] Minimum clearance required for movement of hinged lid; applicable only to 63 A accessories.

STANDARD SHEET
2-V

MECHANICAL INTERLOCK FOR 16/20 A, 32/30 A, 63/60 A AND 125/100 A ACCESSORIES HAVING RATED OPERATING VOLTAGES EXCEEDING 50 V


IPX0/ordinary and IPX4/splash-proof socket-outlet or connector
IPX7/watertight socket-outlet or connector
e_1
e_1
Interlocking member
Interlocking member
e_2
e_2
IPX0/ordinary and IPX4/splash-proof plug or appliance inlet
IPX7/watertight plug or appliance inlet

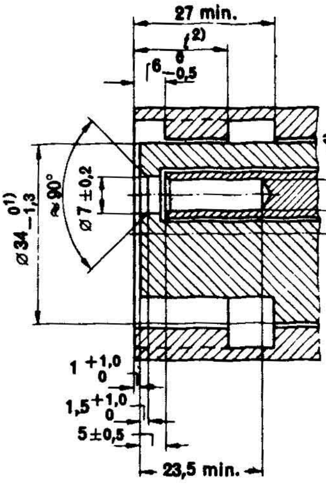
Rated current (A)	Type	e_1		e_2	
			Tol.		Tol.
16/20	2P + ⏚	22.0	$^{+0.5}_{0}$	23.5	$^{0}_{-0.3}$
	3P + ⏚	25.0	$^{+0.5}_{0}$	23.5	$^{0}_{-0.3}$
	3P + N + ⏚	28.3	$^{+0.5}_{0}$	23.5	$^{0}_{-0.3}$
32/30	2P + ⏚	29.0	$^{+0.7}_{0}$	31.5	$^{0}_{-0.5}$
	3P + ⏚	29.0	$^{+0.7}_{0}$	31.5	$^{0}_{-0.5}$
	3P + N + ⏚	32.1	$^{+0.7}_{0}$	31.5	$^{0}_{-0.5}$
63/60	All types	35	$^{+1}_{0}$	45	$^{0}_{-1}$
125/100	All types	41	$^{+1}_{0}$	53	$^{0}_{-1}$

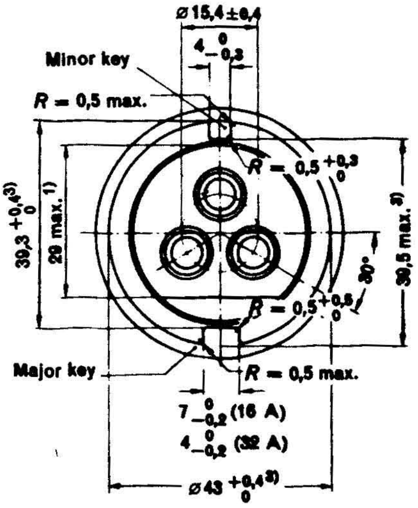
Dimensions in millimetres

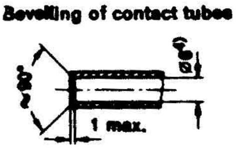
The sketches are not intended to govern design except as regards the dimensions shown.

STANDARD SHEET
2-VIII

16/20 A AND 32/30 A SOCKET-OUTLETS AND CONNECTORS HAVING RATED OPERATING VOLTAGES NOT EXCEEDING 50 V

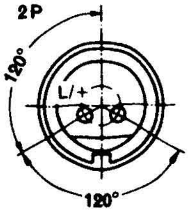


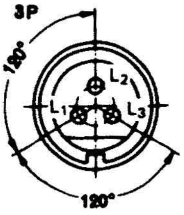




ARRANGEMENT OF CONTACT TUBES

Front view of contact tubes of socket-outlet or connector





Dimensions in millimetres

---

[1] These dimensions shall be within the prescribed limits over a distance of 27 mm.

[2] The dimension *t* is 10 mm for a minor key of metal and 18 mm for a minor key of insulating material.

[3] These dimensions shall be within the prescribed limits over the distance *t*. Beyond this, they may be larger but not smaller.

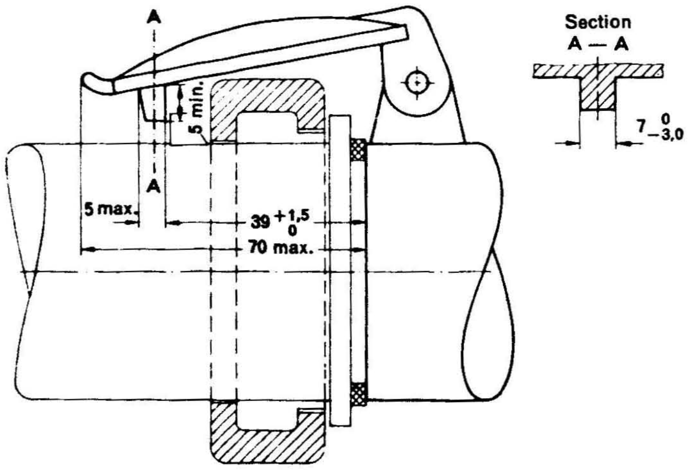
[4] This dimension refers to the pins; the contact tubes need not be circular.

STANDARD SHEET 2-VIII

(continuation 1)

RETAINING MEANS FOR IPX0/ORDINARY AND IPX4/SPLASH-PROOF SOCKET-OUTLETS AND CONNECTORS

Lid or lever shown in latched position



Dimensions in millimetres

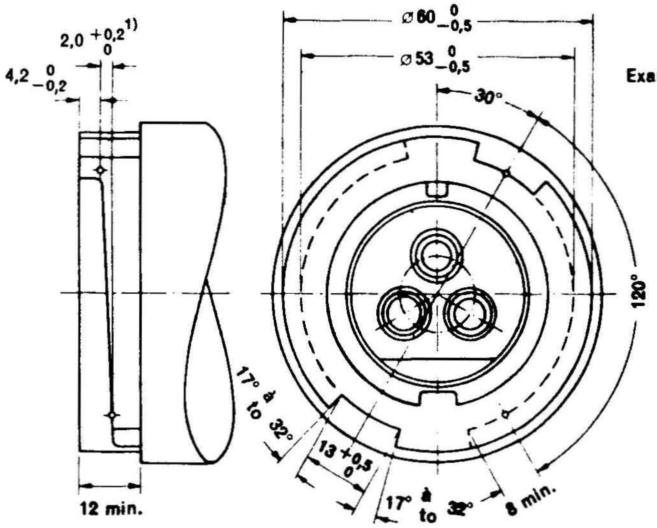
For IPX0/ordinary accessories, the retaining means shall be in the form of a lid as shown above for IPX4/splash-proof accessories, or with a lever having the dimensions necessary for latching to the retaining lug of the plug.

For IPX4/splash-proof accessories, the retaining means must be in the form of a lid such that IPX7/watertight plugs or appliance inlets complying with Standard Sheet 2-IX and provided with a bayonet ring having maximum dimensions can be correctly introduced and retained.

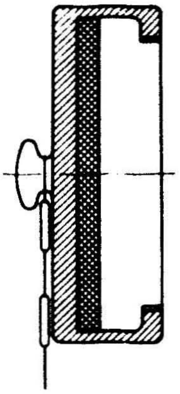
STANDARD SHEET

2-VIII (continuation 2)

RETAINING MEANS FOR IPX7/WATERTIGHT SOCKET-OUTLETS AND CONNECTORS



Example of cap with chain



Dimensions in millimetres

---

[1] The indication of the ramps shall be such that this dimension refers to the angle of 120° shown.

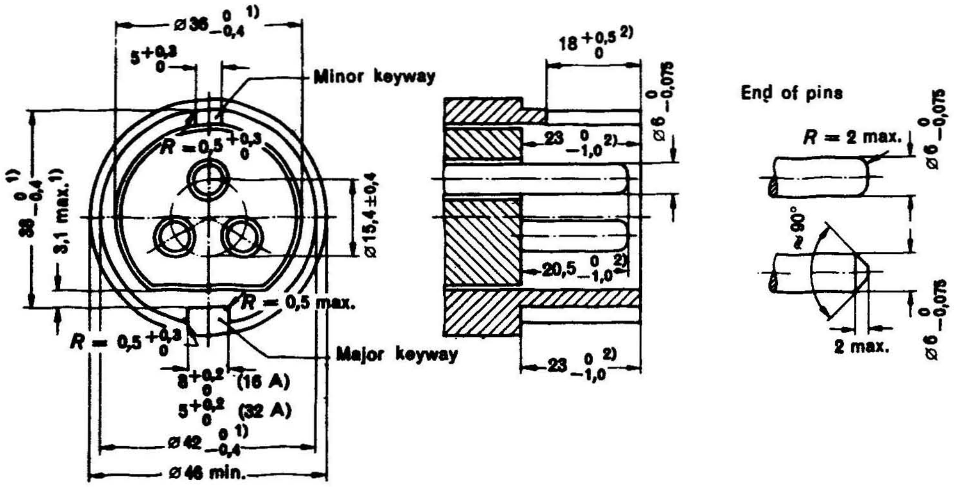
The retaining means shall be in the form of bayonet ramps.

The sketches are not intended to govern design except as regards the dimensions shown.

STANDARD SHEET

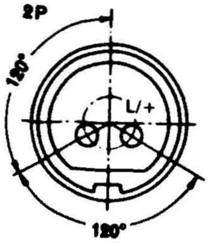
2-IX

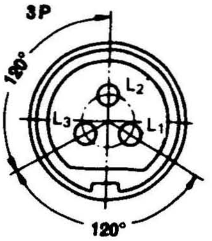
16/20 A AND 32/30 A PLUGS AND APPLIANCE INLETS HAVING RATED OPERATING VOLTAGES NOT EXCEEDING 50 V



ARRANGEMENT OF PINS

Front view of pins of plug or appliance inlet





Dimensions in millimetres

---

(1) These dimensions shall be within the prescribed limits over a distance of:

26 mm for IPX7/watertight accessories;

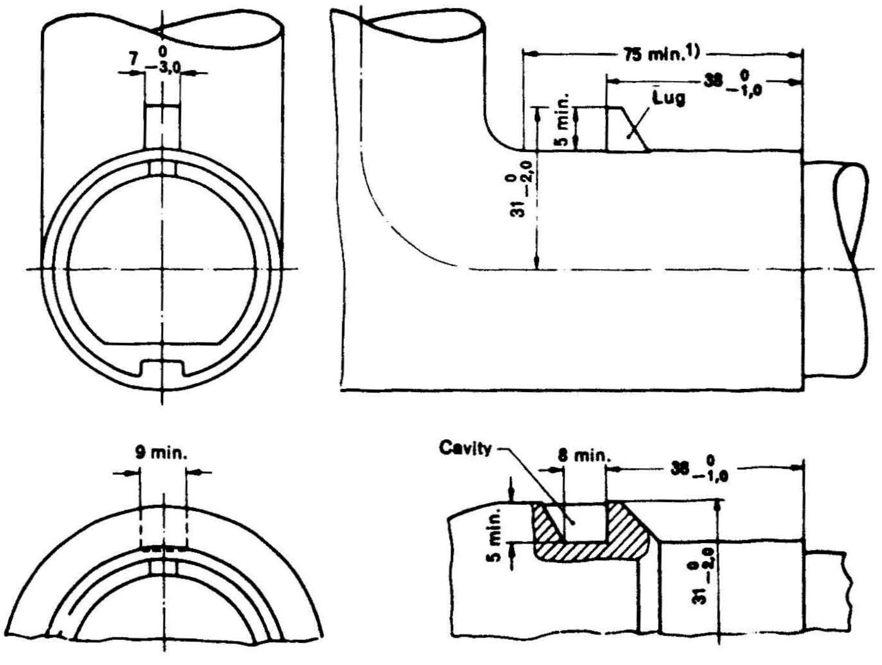
23 mm for other accessories.

[2] For IPX7/watertight accessories, these dimensions are increased by 3.0 mm.

STANDARD SHEET

2-IX (continuation 1)

RETAINING MEANS FOR IPX0/ORDINARY AND IPX4/SPLASH-PROOF PLUGS AND APPLIANCE INLETS



Dimensions in millimetres

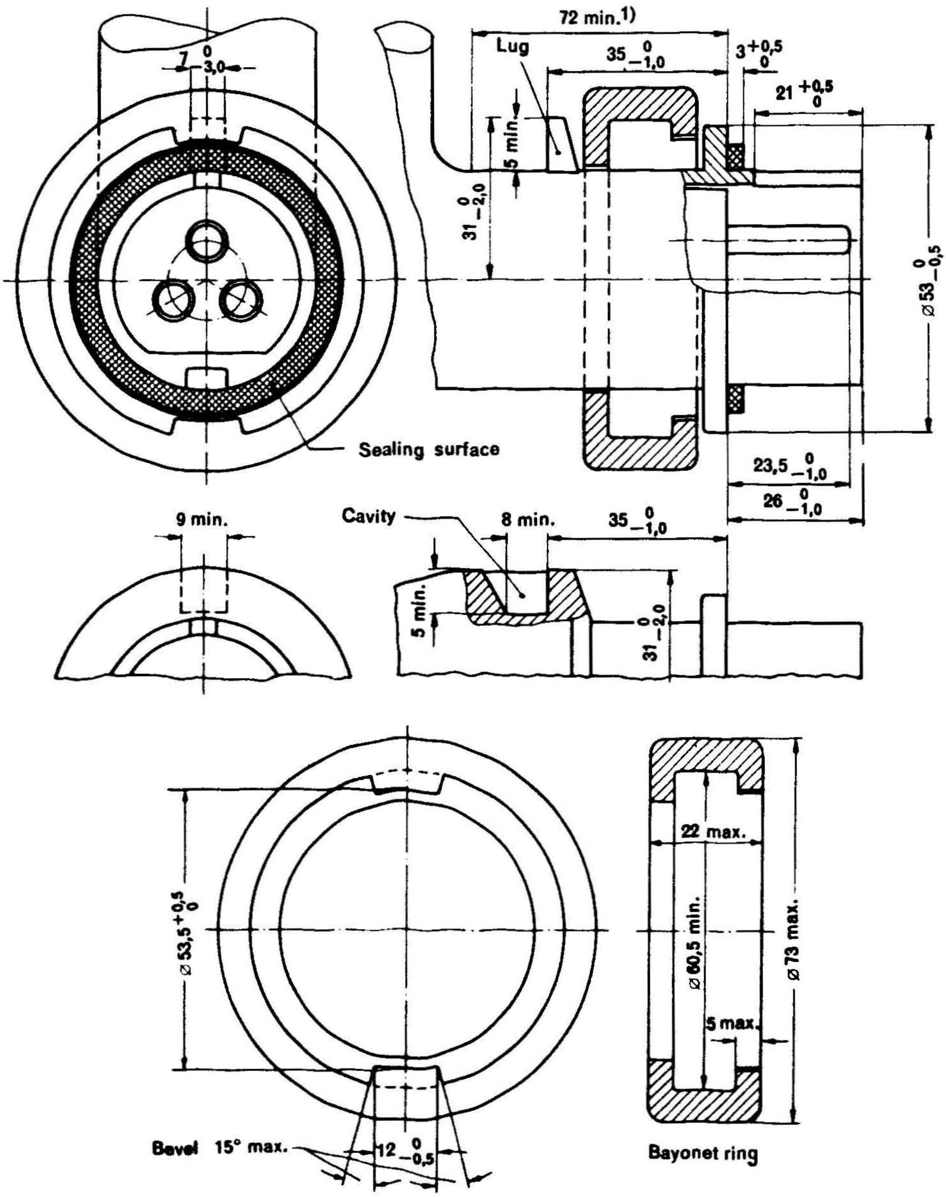
---

[1] Minimum clearance required for movement of hinged lid.

The retaining means shall be in the form of a lug or a cavity, at position 12 h.

STANDARD SHEET
2-IX (continuation 2)

RETAINING MEANS FOR IPX7/WATERTIGHT PLUGS AND APPLIANCE INLETS



Dimensions in millimetres

---

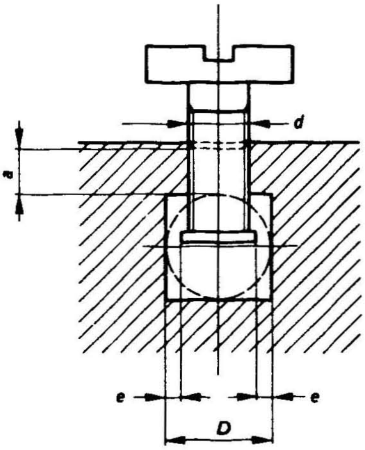
[1] Minimum clearance required for movement of hinged lid.

The retaining means shall be in the form of a bayonet ring and a lug or a cavity, at position 12 h

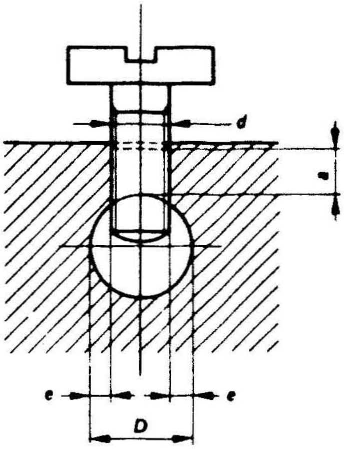
The sketches are not intended to govern design except as regards the dimensions shown.

STANDARD SHEET
2-X

PILLAR TERMINALS



Terminal with pressure plate



Terminal without pressure plate

Terminal size	Minimum diameter of conductor space D	Minimum nominal thread diameter d		Maximum gap between conductor restraining parts e	Minimum length of thread in terminal a		Minimum distance between clamping screw and end of conductor when fully inserted	
		One screw	Two screws		One screw	Two screws	One screw	Two screws
2	3.0	3.0[1]	2.5	0.5	2.0	1.8	1.5	1.5
3	3.6	3.5	2.5[2]	0.5	2.5	1.8	1.8	1.5
4	4.0	3.5	3.0[1]	0.6	2.5	2.0	1.8	1.5
5	4.5	4.0	3.0[1]	1.0	3.0	2.0	2.0	1.5
6	5.5	5.0	4.0	1.3	4.0	3.0	2.5	2.0
7	7.0	6.0	4.0	1.5	4.0	3.0	3.0	2.0
8	10.0	–	6.0	–	–	4.0	–	3.0
9	13.0	–	10.0	–	–	7.5	–	[3]
10	16.0	–	[3]	–	–	[3]	–	[3]

[1] For BA threads, this value is reduced to 2.8.

[2] If the screws have a nominal thread diameter of 2.5 mm, it is necessary to use a pressure plate to ensure that the gap between conductor restraining parts does not exceed the prescribed value.

[3] These values are under consideration.

Dimensions in millimetres

For headed screws, the length of thread on the screw shall not be less than the sum of the diameter of the conductor space and the actual length of thread in the terminal. For other screws, the length of thread shall not be less than the sum of the diameter of the conductor space and the specified minimum length of thread in the terminal.

The part of the terminal containing the threaded hole and the part of the terminal against which the conductor is clamped by the screw may be two separate parts, as in the case of terminals provided with a stirrup.

The shape of the conductor space may differ from those shown in the figures, provided a circle with a diameter equal to the minimum value specified for *D* can be inscribed.

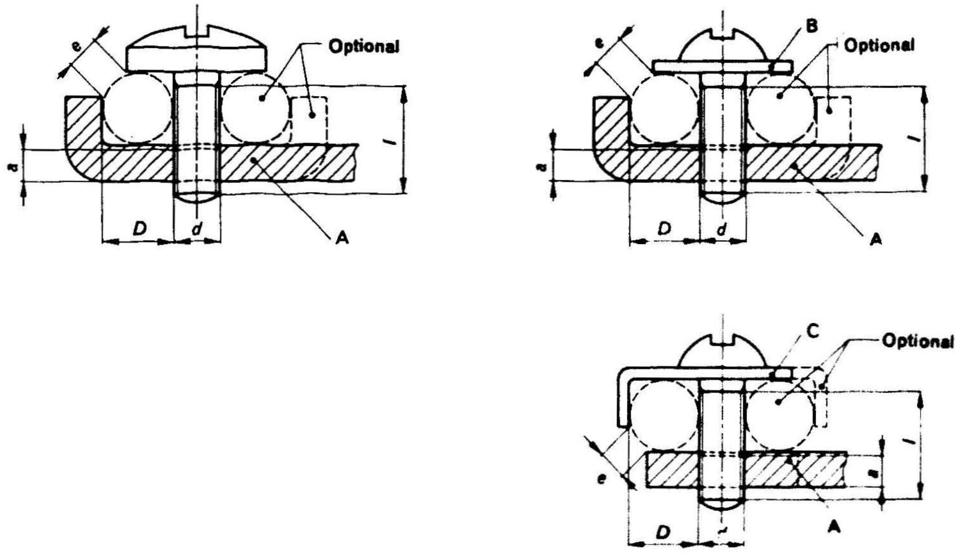
The length of thread in the terminal is measured from the point where the thread is first broken by the hole for the conductor.

The minimum distance between the clamping screw and the end of the conductor when fully inserted applies only to terminals in which the conductor cannot pass right through.

The sketches are not intended to govern design except as regards the dimensions shown.

STANDARD SHEET
2-XI

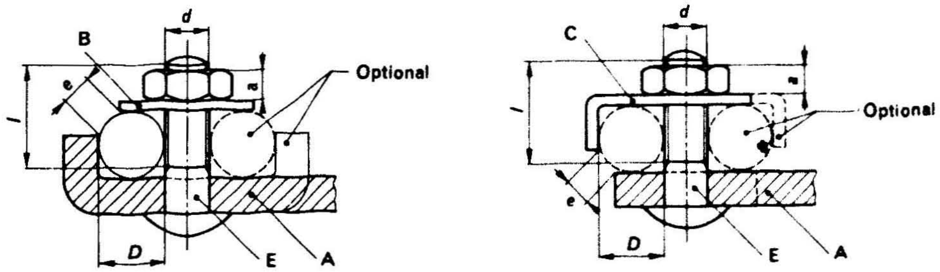
SCREW TERMINALS AND STUD TERMINALS



Screw not requiring washer or clamping plate.

Screw requiring washer or clamping plate.

Screw terminals



Stud terminals

A Fixed part.
B Washer or clamping plate.
C Anti-spread device.

E Stud.

Terminal size	Minimum diameter of conductor space	Minimum nominal thread diameter d		Maximum gap between conductor restraining parts	Minimum length of thread in fixed part or nut a		Minimum length of thread on screw or stud
	D	One screw	Two screws	e	One screw	Two screws	l
2	2.0	3.5	-	1.5	1.5	-	4.0
3	2.7	4.0	3.0[1]	2.5	1.5	1.5	5.5
4	3.6	5.0	4.0	1.5	3.0	2.5	6.5
5	4.3	5.0	4.0	2.0	3.0	2.5	7.5
6	5.5	5.0	4.0	2.0	3.5	2.5	9.0
7	7.0	6.0	5.0	2.0	3.5	3.0	10.5
8	8.0	6.0	5.0	2.0	4.0	3.0	12.0
9	[2]	8.0	[2]	[2]	5.5	[2]	14.0
10	[2]	10.0	[2]	[2]	7.0	[2]	16.0

[1] For BA threads, this value is reduced to 2.8.

[2] These values are under consideration.

Dimensions in millimetres

An intermediate part, such as a washer, clamping plate or anti-spread device, is necessary on all stud terminals, unless the base of the nut is itself round. Such an intermediate part is necessary on screw terminals, if the head of the screw is of insufficient diameter to meet the requirement regarding the gap between conductor restraining parts.

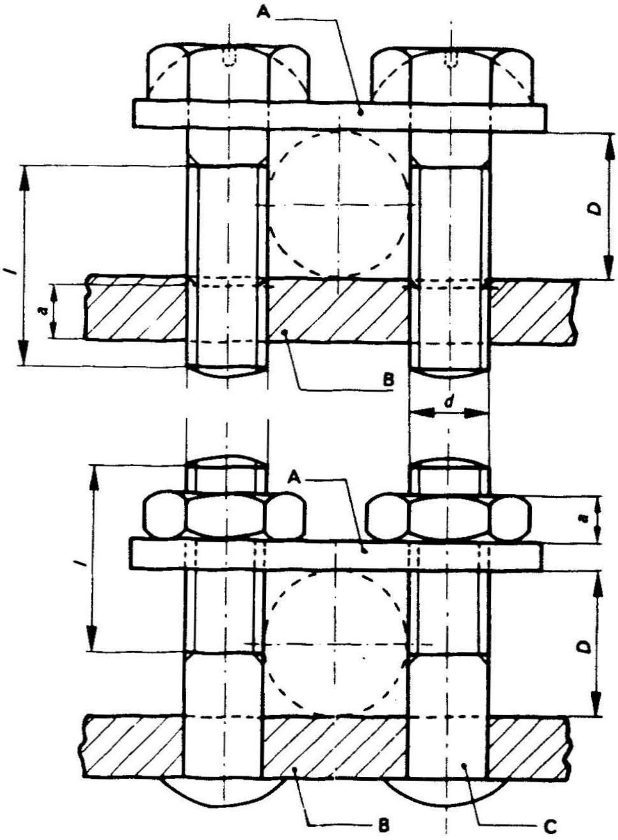
If an intermediate part is used between the head of the screw or the nut and the conductor, the minimum value for the length of the thread on the screw or stud is increased by the thickness of the intermediate part.

The part which retains the conductor in position, to which the dimension c is measured may be of insulating material, provided that the pressure necessary to clamp the conductor is not transmitted through the insulating material.

The sketches are not intended to govern design except as regards the dimensions shown.

STANDARD SHEET
2-XII

SADDLE TERMINALS



A Saddle.
B Fixed part.
C Stud.

Terminal size	Minimum diameter of conductor space *D*	Minimum nominal thread diameter *d*	Minimum length of thread in fixed part or nut *a*	Minimum length of thread on screws or studs *l*
3	3.0	3.0[1]	1.5	5.0
4	4.0	3.5	1.5	6.0
5	4.5	4.0	2.5	7.0
6	5.5	4.0	2.5	8.0
7	7.0	5.0	3.0	10.0

[1] For BA threads, this value is reduced to 2.8.

Dimensions in millimetres

The shape of the section of the conductor space may differ from that shown in the figures, provided a circle with a diameter equal to the minimum value specified for *D* can be inscribed.

The shape of the upper and lower faces of the saddle may be different, to accommodate both small and large cross-sectional area conductors by reversing the saddle.

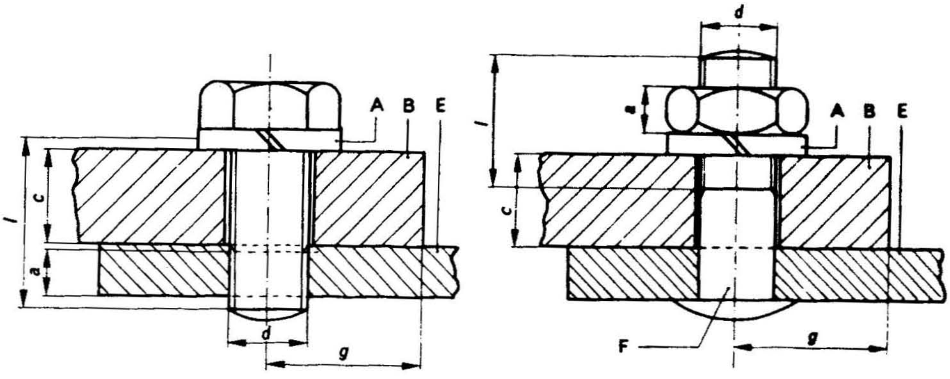
The terminals may have more than two clamping screws or studs.

If the non-threaded part of the shank of the screw or stud is shorter than the thickness of the saddle, the minimum value specified for the length of thread on the screw or stud is taken from the saddle, this being in contact with the head of the screw for terminals with screws, and in contact with the fixed part for terminals with studs.

The sketches are not intended to govern design except as regards the dimensions shown.

STANDARD SHEET
2-XIII

LUG TERMINALS



A Locking means.
B Cable lug or bar.
E Fixed part.
F Stud.

Terminal size	Minimum nominal thread diameter *d*	Minimum length of thread in fixed part or nut *a*	Minimum length of thread on screw or stud *l*	Maximum thickness of lug or bar to be accommodated *c*	Minimum distance from centre of screw or hole to side of rectangular clamping area *g*
6	5.0	3.0	10	6.0	10
7	6.0	3.5	12	8.0	12

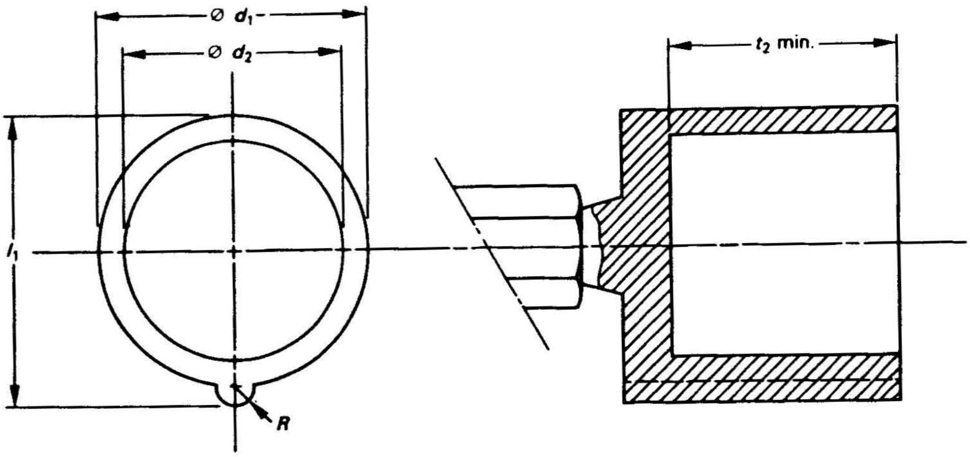
Dimensions in millimetres

A spring washer or equally effective locking means shall be provided for this type of terminal.

A clamping area with a smooth contact surface shall be provided around the screw or hole for clamping the lugs or bars, this area being sufficient to accommodate the rectangular gauge strip specified in Sub-clause 11.7.

If the non-threaded part of the shank of the screw or stud is shorter than the thickness of the locking means, the minimum value specified for the length of thread on the screw or stud shall be increased accordingly.

The sketches are not intended to govern design except as regards the dimensions shown.



The eccentricity between the centres of d_1 and d_2 shall not exceed 0.05 mm.

	d_1 0 −0.05	d_2 +0.05 0	l_1 0 −0.05	R 0 −0.0	t_2 min.
16/20 A – 2P + ⏚	44.3	36.0	47.5	3.3	38
16/20 A – 3P + ⏚	50.4	40.8	54.0	3.3	38
16/20 A – 3P + N + ⏚	57.3	46.4	61.3	3.3	38
32/30 A – 2P + 3P + ⏚	58.6	47.0	64.6	3.3	48
32/30 A – 3P + N + ⏚	64.7	52.9	71.2	3.3	48
63/60 A	71.0	60.0	77.5	4.8	69
125/100 A	83.0	71.0	89.5	4.8	76

Dimensions in millimetres

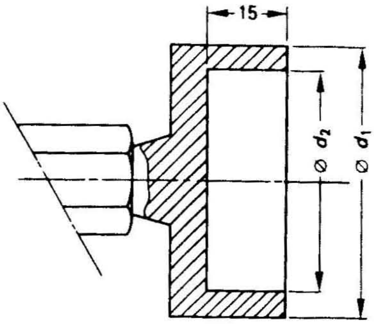
(see Clause 4)

It shall be possible to insert the appropriate gauge into the socket-outlet or connector.

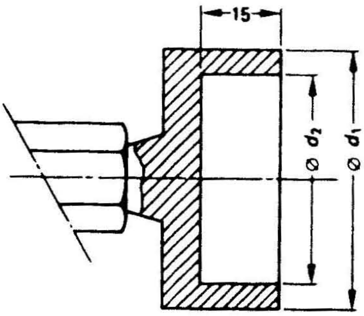
FIGURE 101

16/20 A, 32/30 A, 63/60 A AND 125/100 A
SOCKET-OUTLETS AND CONNECTORS HAVING
RATED OPERATING VOLTAGES EXCEEDING 50 V

"GO" GAUGES FOR CHECKING
DIMENSIONS d_1, d_2, l_1



GAUGE A FOR CHECKING Ø d_1



GAUGE B FOR CHECKING Ø d_2

	Gauge A		Gauge B	
	d_1 −0.05 0	d_2 +0.5 0	d_1 0 −0.05	d_2 +0.05 0
16/20 A – 2P + ⏚	44.73	37.0	43.3	34.47
16/20 A – 3P + ⏚	50.93	41.8	49.4	39.27
16/20 A – 3P + N + ⏚	57.93	47.4	56.3	44.87
32/30 A – 2P + ⏚ 3P + ⏚	59.23	48.0	57.6	45.47
32/30 A – 3P + N + ⏚	65.33	53.9	63.7	51.37
63/60 A	71.83	61.0	70.0	58.47
125/100 A	83.83	72.0	82.0	69.47

Dimensions in millimetres

(see Clause 4)

It shall not be possible to insert the gauges A and B into socket-outlet or connector.

FIGURE 102

16/20 A, 32/30 A, 63/60 A AND 125/100 A
SOCKET-OUTLETS AND CONNECTORS
HAVING RATED OPERATING VOLTAGES
EXCEEDING 50 V

"NOT GO" GAUGES
FOR CHECKING DIMENSIONS d_1, d_2

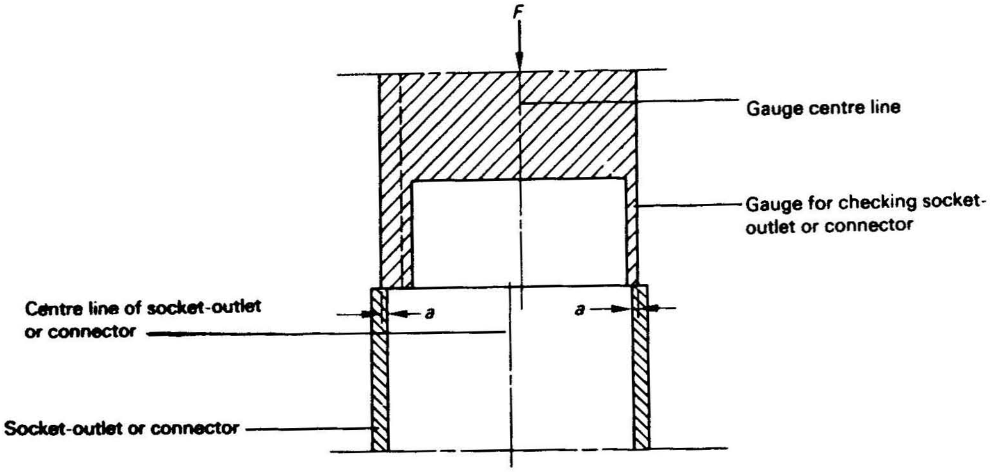

F
Gauge centre line
Gauge for checking socket-outlet or connector
Centre line of socket-outlet or connector
a
a
Socket-outlet or connector

FIGURE 103

ARRANGEMENT FOR TEST USING "NOT GO" GAUGE FOR CHECKING 16/20 A, 32/30 A, 63/60 A AND 125/100 A SOCKET-OUTLETS AND CONNECTORS HAVING RATED OPERATING VOLTAGE EXCEEDING 50 V

(see Clause 4)

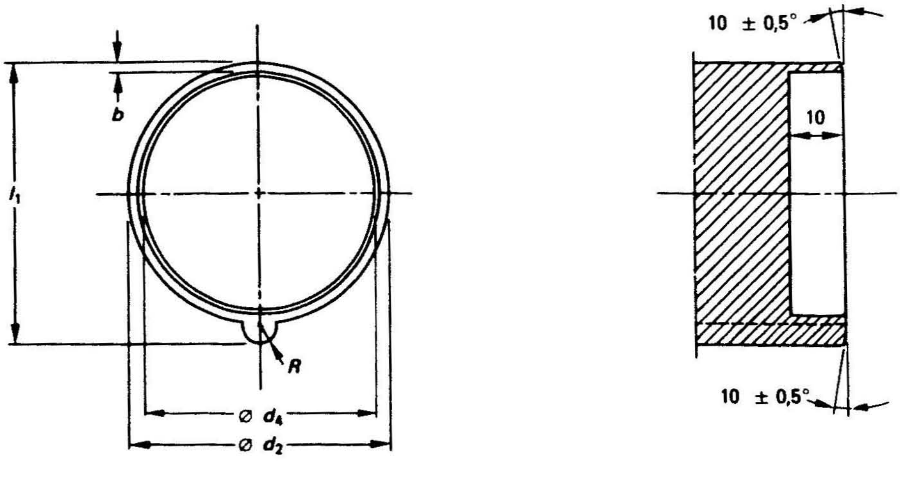


FIGURE 104 The eccentricity between the centres of d_2 and d_4 shall not exceed 0.05 mm.

GAUGES FOR CHECKING SOCKET-OUTLETS OR CONNECTORS OF 16/20 A, 32/30 A, 63/60 A AND 125/100 A HAVING RATED OPERATING VOLTAGES EXCEEDING 50 V

(see Clause 4)

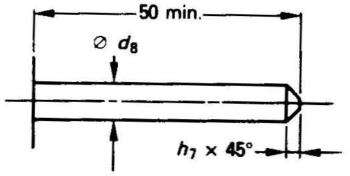


FIGURE 105

GAUGE FOR CHECKING PHASE HOLES

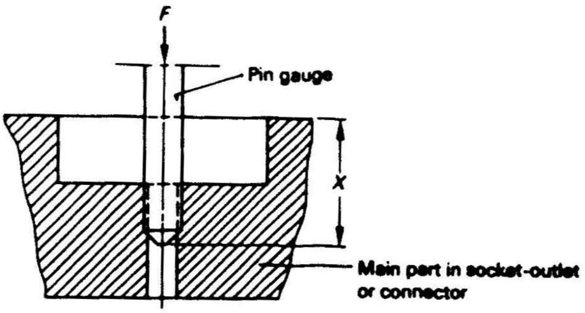


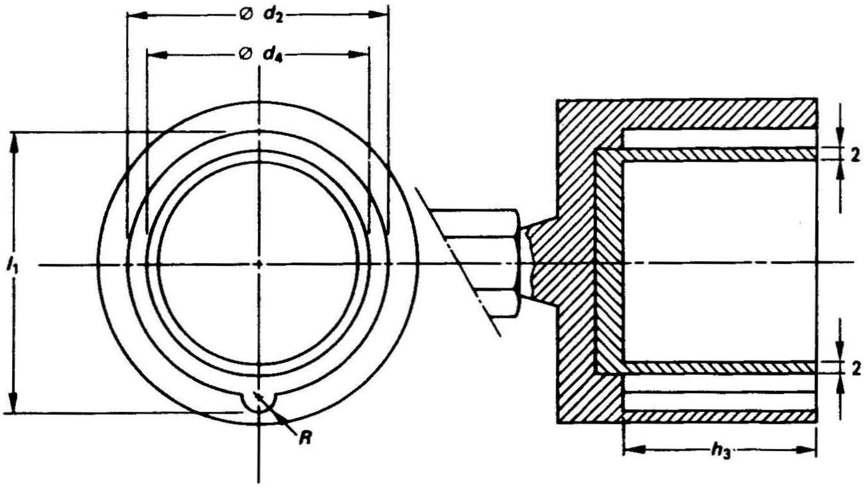
FIGURE 106

TEST OF PHASE PIN

Dimensions for Figures 104 and 105

Gauge	d_2 0 −0.05	d_4 +0.1 0	d_8 0 −0.03	h_7 +0.1 0	l_1 0 −0.05	b ±0.1	R 0 −0.1
B 16/3	42.9	39.4	6.91	2.2	46.1	1.4	2.8
B 16/4	48.9	44.3	6.91	2.2	52.4	1.5	2.8
B 16/5	55.5	50.3	6.91	2.2	59.5	1.6	2.8
B 32/3/4	56.5	51.3	7.91	2.5	62.6	2.5	2.8
B 32/5	62.6	57.2	7.91	2.5	69.2	2.7	2.8
B 63	68.7	63.5	9.89	3	74.9	2.45	3.8
B 125	80.7	75.0	11.89	4	86.9	2.45	3.8

Dimensions in millimetres



The eccentricity between the centres of d_2 and d_4 shall not exceed 0.05 mm.

	d_2 +0.05 0	d_4 0 −0.05	h_3	l_1 +0.05 0		R +0.25 0
				1)	2)	
16/20 A – 2P + ⏚	43.5	37.9	37.05	46.5	47.0	3.2
16/20 A – 3P + ⏚	49.5	42.8	37.05	52.9	53.6	3.2
16/20 A – 3P + N + ⏚	56.1	48.8	37.05	60.1	61.0	3.2
32/30 A – 2P + ⏚ 3P + ⏚	57.3	49.7	46.05	63.2	63.2	3.2
32/30 A – 3P + N + ⏚	63.4	55.6	46.05	69.9	69.9	3.2
63/60 A	69.5	61.5	67.05	75.5		4.2
125/100 A	81.5	72.5	75.55	87.5		4.2

Dimensions in millimetres

(see Clause 4)

1) For accessories with metal enclosures.

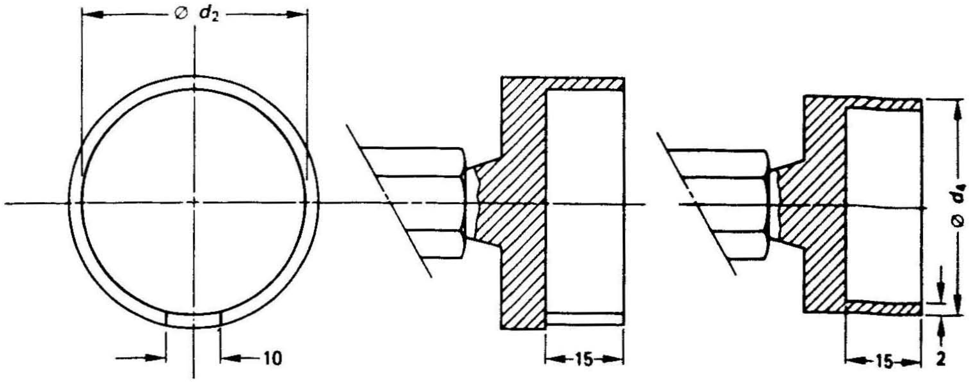
2) For accessories with enclosures of insulating material.

It shall be possible to insert the appropriate gauge into the plug or appliance inlet.

FIGURE 107

16/20 A, 32/30 A, 63/60 A AND 125/100 A PLUGS AND APPLIANCE INLETS HAVING RATED OPERATING VOLTAGES EXCEEDING 50 V

"GO" GAUGES FOR CHECKING DIMENSIONS d_2, d_4, l_1



GAUGE A FOR CHECKING Ø d_2

GAUGE B FOR CHECKING Ø d_4

	Gauge A	Gauge B	
	d_2 ${}^{0}_{-0.05}$	d_4 ${}^{+0.05}_{0}$	
		1)	2)
16/20 A – 2P + ⏚	42.87	39.83	39.43
16/20 A – 3P + ⏚	48.87	44.73	44.33
16/20 A – 3P + N + ⏚	55.47	50.73	50.33
32/30 A – 2P + ⏚ 3P + ⏚	56.47	51.63	51.33
32/30 A – 3P + N + ⏚	62.57	57.53	57.23
63/60 A	68.67	63.53	
125/100 A	80.67	75.03	

Dimensions in millimetres

(see Clause 4)

1) For accessories with metal enclosures.

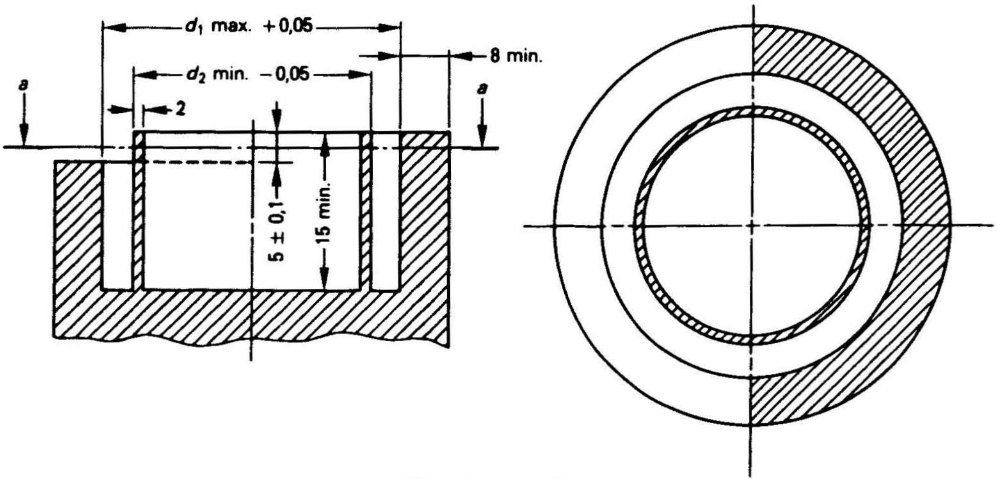
2) For accessories with enclosures of insulating material.

It shall not be possible to insert the gauges A and B into the plug or appliance inlet.

FIGURE 108

16/20 A, 32/30 A, 63/60 A AND 125/100 A PLUGS
AND APPLIANCE INLETS HAVING RATED
OPERATING VOLTAGES EXCEEDING 50 V

"NOT-GO" GAUGES FOR CHECKING
DIMENSIONS d_2, d_4

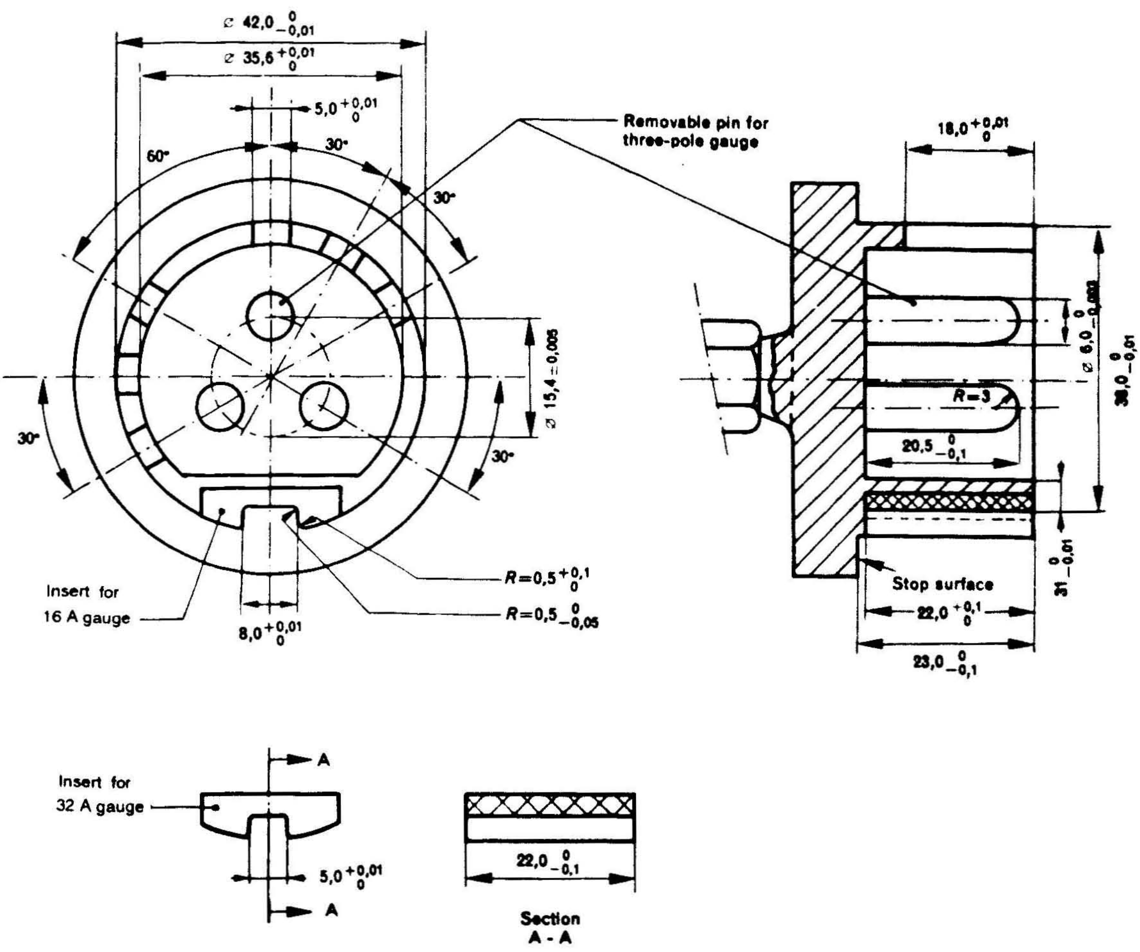


Dimensions in millimetres

FIGURE 109

Dimensions d_1 and d_2 are those of the corresponding socket-outlets or connectors.

"NOT-GO" GAUGE FOR CHECKING 16/20 A, 32/30 A 63/60 A AND 125/100 A PLUGS AND APPLIANCE INLETS HAVING RATED OPERATING VOLTAGES EXCEEDING 50 V



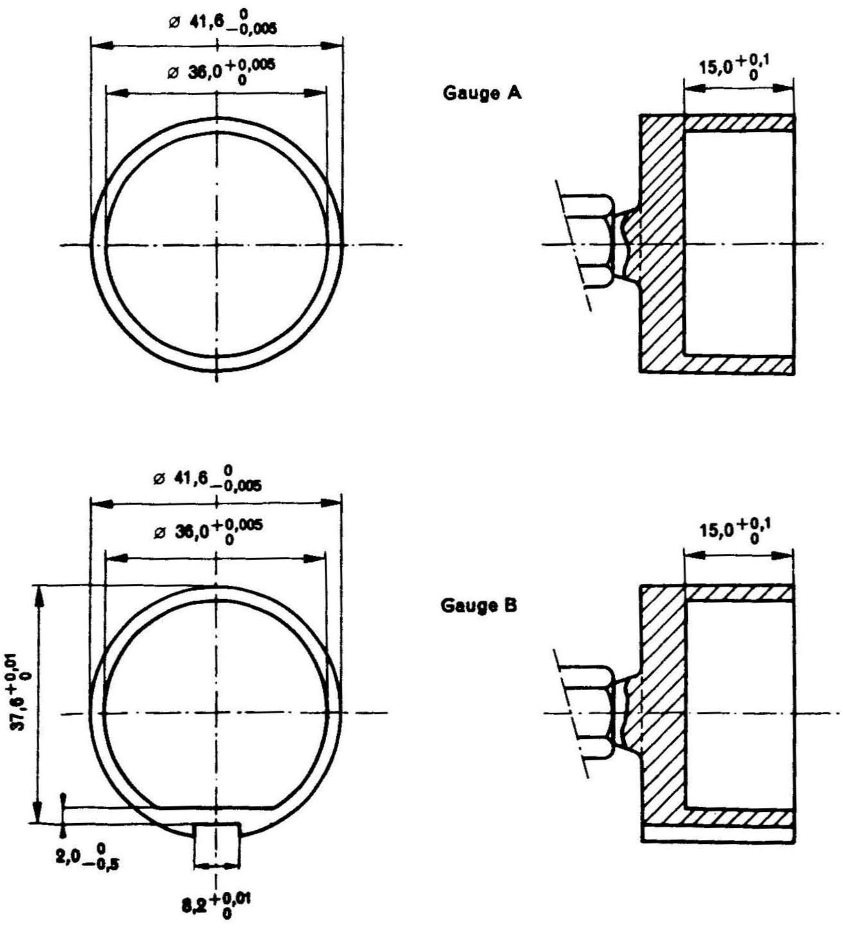
Dimensions in millimetres

It shall be possible to insert the appropriate gauge into the socket-outlet or connector so that the stop surface of the gauge comes into contact with the front surface of the shroud of the socket-outlet or connector

FIGURE 110

16/20 A AND 32/30 A SOCKET-OUTLETS AND CONNECTORS HAVING RATED OPERATING VOLTAGES NOT EXCEEDING 50 V

GAUGES FOR CHECKING INTERCHANGEABILITY



Dimensions in millimetres

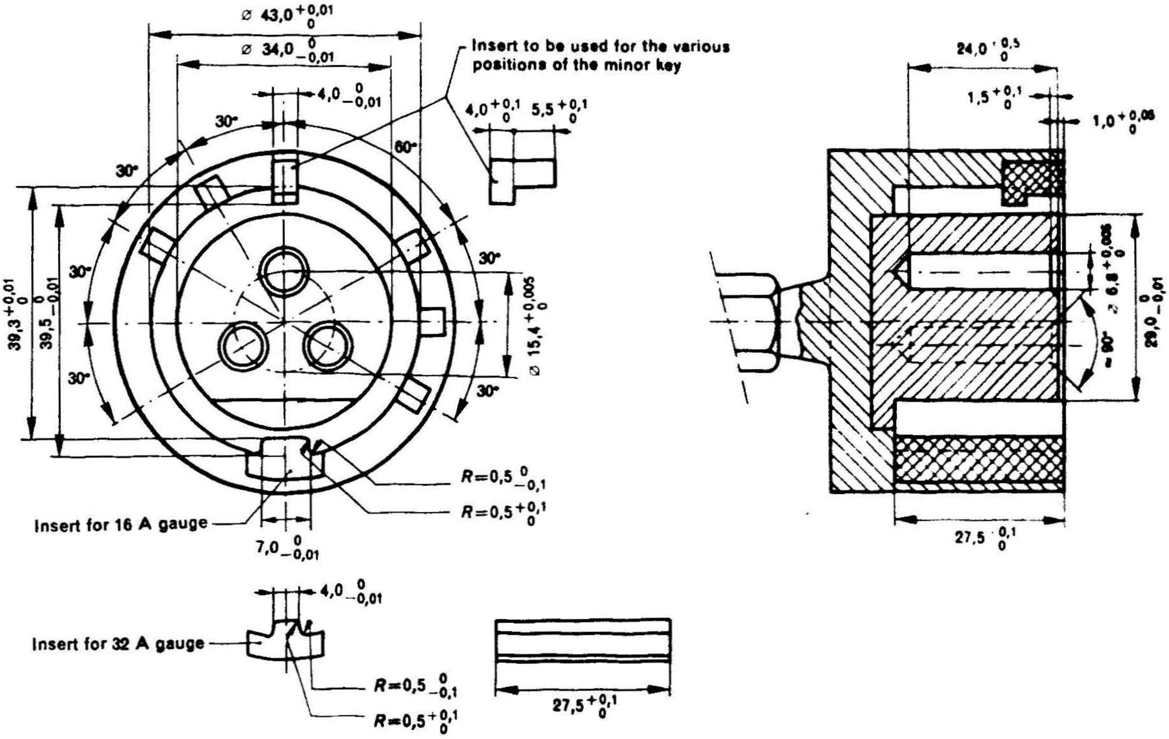
It shall not be possible to insert the gauge A into the socket-outlet or connector.

It shall not be possible to insert the gauge B in the correct position into the shroud of the socket-outlet or connector.

FIGURE 111

16/20 A AND 32/30 A SOCKET-OUTLETS AND CONNECTORS HAVING RATED OPERATING VOLTAGES NOT EXCEEDING 50 V

GAUGES FOR CHECKING RIGIDITY OF ENCLOSURES OF THERMOPLASTIC MATERIAL UNDER HUMID AND WARM CONDITIONS



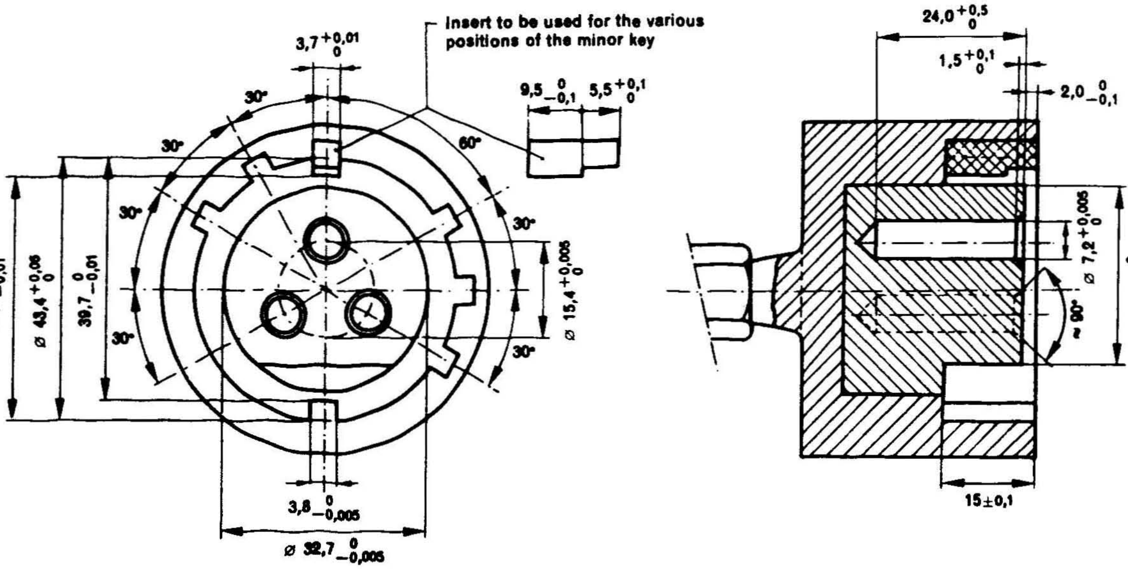
Dimensions in millimetres

It shall be possible to insert the appropriate gauge, without undue force, into the plug or appliance inlet so that the front surface of the gauge comes into contact with the stop surface of the plug or appliance inlet.

FIGURE 112

16/20 A AND 32/30 A PLUGS AND APPLIANCE INLETS HAVING RATED OPERATING VOLTAGES NOT EXCEEDING 50 V

GAUGES FOR CHECKING INTERCHANGEABILITY



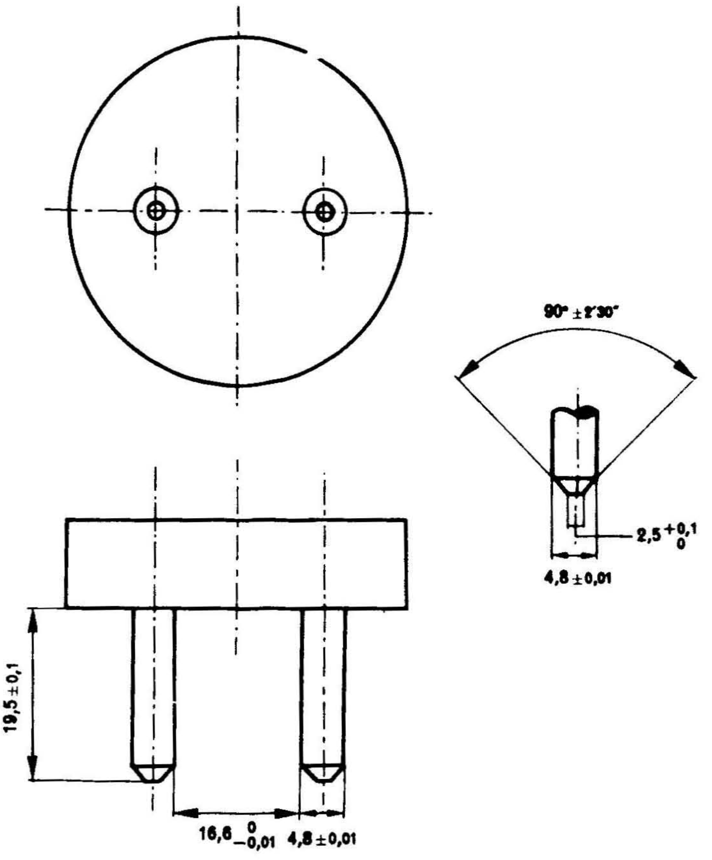
Dimensions in millimetres

In any position of the insert, it shall not be possible to pass the gauge in the correct position over the shroud of the plug or appliance inlet.

FIGURE 113

16/20 A AND 32/30 A PLUGS AND APPLIANCE INLETS HAVING RATED OPERATING VOLTAGES NOT EXCEEDING 50 V

GAUGES FOR CHECKING RIGIDITY OF ENCLOSURES OF THERMOPLASTIC MATERIAL UNDER HUMID AND WARM CONDITIONS



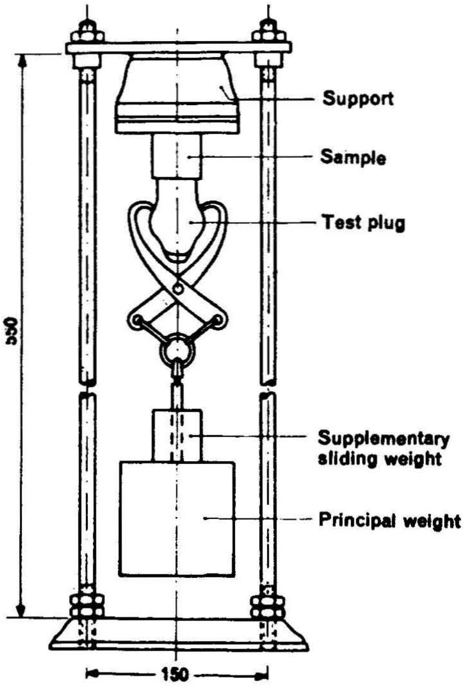
Dimensions in millimetres

It shall not be possible to touch a contact tube of the socket-outlet or connector with one gauge pin only.

FIGURE 114

SOCKET-OUTLETS AND CONNECTORS WITH ENCLOSURES OF RESILIENT OR THERMOPLASTIC MATERIAL

GAUGE FOR CHECKING IMPOSSIBILITY OF SINGLE-POLE INSERTION OF 10/16 A 250 V TWO-POLE PLUGS



Dimensions in millimetres

FIGURE 115

APPARATUS FOR CHECKING THE WITHDRAWAL FORCE

Plugs, socket-outlets and couplers for industrial purposes

Part 2: Dimensional interchangeability requirements for pin and contact-tube accessories

CORRIGENDUM

Page 9

Replace the fourth paragraph by the following:

After the test, the socket-outlet or the connector shall not be so damaged as to impair the further use of the accessory.

Page 13

Table 108

Add "force N" *after* "Pull".

Page 17

Paragraph 16.1

Replace "Replacement" by: "Replacement of the 3rd paragraph with the following:"

Page 19

Under the figure

Alter the second line on the first paragraph to read:

"... shall not have a depth of more than 10 mm."

Alter the second paragraph to read as follows:

Socket-outlets for mechanical interlocking shall be so designed that excessive angular movement of a fully inserted plug which would render the mechanical interlocking ineffective, is prevented.

Pages 28 and 29

Under the figure

Alter the second line of the first paragraph to read:

... shall not have a depth of more than 10 mm ".

Alter the last paragraph to read as follows:

Socket-outlets for mechanical interlocking shall be so designed that excessive angular movement of a fully inserted plug, which would render the mechanical interlocking ineffective, is prevented.

Page 30

Second table, middle column:

instead of:

h_6

read:

$h_{6}{}^{+1}_{0}$

In Note 4), delete "well" *in the first line.*

Page 32

Under the figure

Delete in the second paragraph:

... and a lid ...

Corrrect the table as follows:

2P + ⏚ 3P + ⏚	63/60	95.5	84.5	13
3P + N + ⏚	125/100	108.5	97.5	16

Page 39

Under the central figure

Replace (16 A) *by* (16/20 A) *and* (32 A) *by* (32/30 A)

Page 52

Table, fifth column

The second tolerance shall be: –0,025.

Page 53

In the table, alter the tolerances as follows:

Gauge A, d_1: $^{+0,05}_{0}$

Gauge B, d_1: $^{0}_{-0.5}$

Gauge B, d_2: $^{0}_{-0,05}$

Page 54

Figure 104, in the right-hand figure:

add "°", *to read* 10° ± 0,5°, *twice.*

Page 55

Correct the first column of the table as follows:

16/20 A – 2P + ⏚
16/20 A – 3P + ⏚
16/20 A – 3P + N + ⏚
32/30 A – 2P + ⏚ 3P + ⏚
32/30 A – 3P + N + ⏚
63/60 A
125/100 A

Below figure 106, write:

TEST OF PHASE HOLES

Page 59

In the right-hand figure replace

31 *by* 3,1

Pages 59 and 61

Where relevant replace

16 A *by* 16/20 A *and*

32 A *by* 30/32 A

General remark about the tables on pages 52, 53, 54, 55 *and* 56:

In the empty rectangle at the top right-hand corner, add the word "TYPE"

(Continued from second cover)

This standard (Part 2) applies to plugs and socket-outlets, cable couplers and appliance couplers with pins and contact tubes of standardized configurations and rated current not exceeding 125 A, primarily intended for industrial application, either indoor or outdoor.

This standard shall be read in conjunction with Part 1 of this standard.

The text of IEC Standard has been approved as suitable for publication as Indian Standard without deviation.

In the adopted standard certain terminology and conventions are not identical with those used in Indian Standards, attention is specially drawn to the following:

a) Wherever the words 'International Standard' appear, referring to this standard, they should be read as 'Indian Standard'.

b) Comma (,) has been used as a decimal marker while in Indian Standard, the current practice is to use a point (.) as a decimal marker.

Only the English language text given in the International Standard has been retained while adopting it as Indian Standard, and as such the page number given here are not the same as in IEC publication.

CROSS REFERENCES

In this Indian Standard, the following International Standards are referred to be read in their respective places :

International Standard	*Corresponding Indian Standard*	*Degree of Equivalence*
IEC Pub 228 (1978)	IS 8130 : 1984 Conductors for insulated electric cables and flexible cords (*first revision*)	Technically equivalent
IEC Pub 529 (1989)	IS 12063 : 1987 Classification of degrees of protection provided by enclosures of electrical equipment	do
IEC Pub 309-1 (1988)	IS/IEC 309-1 (1988) Plugs, socket-outlets and couplers for industrial purposes: Part 1 General requirements	Identical

For the purpose of deciding whether a particular requirements of this standard is complied with the final value, observed or calculated expressing the result of a test, shall be rounded off in accordance with IS 2 : 1960 'Rules for rounding off numerical values (*revised*)'. The number of significant places retained in the rounded off value should be the same as that of the specified value in this standard.

This standard also includes a corrigendum which is given at the end.

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Amendments Issued Since Publication

Amend No.	Date of Issue	Text Affected

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